ROM

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Magazine *of the* Royal Ontario Museum

The Dead Sea Scrolls Issue: MYSTERY WRITERS: Who Really Penned the Dead Sea Scrolls? /
Science Lessons: How technology is helping Dead Sea Scrolls researchers /
WHITE RHINOS: The Life and Times of One Member of This Endangered Species /
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Learn about the life and times of this mighty white rhino

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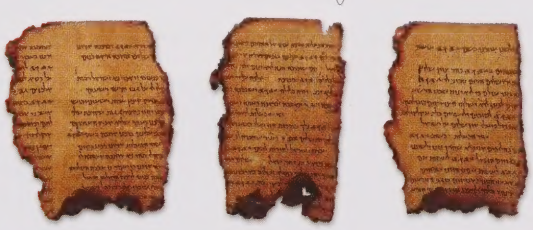

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Photo: Brian Boyle

INFORMATION

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Admission, except for ticketed exhibitions, is free after 4:30 pm Wednesdays.

Admission is free on Tuesdays for post-secondary Canadian students with ID.

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**All adult Members must present a valid membership card. Membership cards are not transferable.*

> **Ask an Expert: Good Shepherd Ivory Carvings**
The Spring 2009 "Ask an Expert" left questions about carvings from Goa, India, unanswered. Typically, the relief figure at the base is a woman, specifically St. Mary Magdalene. She is shown as a penitent, reclining in a desert cave, with a book in front of her. Often there are details of a crucifix and skull, and lions on either side. In the ROM carving, there is a cross at the Magdalene's left. Some authorities suggest that the lions derive from legends of St. Mary of Egypt, which became intertwined with those relating to St. Mary Magdalene. **K. COREY KEEBLE** is a curator in the ROM's European section

Denise Dias
WRITER

Dias ("Shopping"), a native Torontonian and self-proclaimed shopaholic, works for the ROM Governors Office, where she manages communications and event materials and the development of social media strategies. As a regular contributor to *ROM* Magazine, *Vervegirl* magazine, and Shedoesthe city.com, she is on top of the latest trends in fashion, art, and culture. When not at the ROM, chances are she is shopping at independent boutiques along Queen Street West or scouring vintage shops on Ossington Ave.

Do you have any favourite shopping moments? Having a giggle fit with girlfriends in the grandiose fitting rooms of Galeries Lafayette in Paris and shopping ever-so-discreetly alongside Scarlett Johansson in SoHo, NYC.

Judith Eger
SENIOR CURATOR

A 40-year veteran of the ROM, Eger ("The Gentle Giant") began as a research assistant and is now senior curator of mammals. She has thrived on the variety and change in her job, from taking computer cards to U of T's Computer Centre in the late 1960s to moving the mammal collection in the 1980s into the "new" 1982 building. Her research interests include systematics and biogeography of bats of Africa, Madagascar, and Asia, and mammals of the Canadian North. She is also helping to organize the Mammal Bar Code of Life project.

What was your hairiest moment in the field? In Vietnam in 1999, as we trekked back from our base camp, our guide sent me and a colleague ahead of the group (we were slow walkers) with instructions to take the right fork in the trail. After several hours, we were completely lost. We returned to our camp, uphill all the way. By then the others were long gone. Fortunately, Mr. Hi, who had been our security guard, was there. He marched us by flashlight (via the left fork) the five-and-a-half hours back to Nouc Xa.

Risa Levitt Kohn
GUEST CURATOR

Dr. Levitt Kohn ("Science of the Scrolls") is guest curator of the exhibition *Dead Sea Scrolls: Words that Changed the World*. Director of the Jewish Studies Program and a professor in the Religious Studies Department at San Diego State University, she earned a doctorate in ancient history and the Hebrew Bible from the University of California, San Diego. Levitt Kohn spent her formative years in Toronto, visiting the ROM often and attending York and University of Toronto. She is particularly interested in the period in which the Dead Sea Scrolls were written and the light they shed on what we can learn about Jewish and Christian origins. She explores these themes in her recent book, *A Portable God: The Origin of Judaism & Christianity* (Rowman & Littlefield).

What intrigues you most about the Dead Sea Scrolls? There is a very human side to the scrolls. Reading them, you learn that people 2,000 years ago had similar thoughts and pondered the same sorts of issues we do today—who are we? Where are we going in life? How will it end? It is fascinating and humbling.

Dan Rahimi
VICE PRESIDENT

As curator of the exhibition *Treasures of the Holy Land*, Dan Rahimi ("Mystery Writers") first displayed Dead Sea Scrolls at the ROM in 1988. He spices up a career as Vice President, Gallery Development, at the ROM with ongoing field projects as an archaeologist, digging in Jordan and Yemen—though he has seen little of the field in recent RenROM years.

What intrigues you most about the *Dead Sea Scrolls*? The amazing thing about the scrolls, to me, is their variety. Biblical texts, texts that didn't make it into the canon but could have, poetry, liturgy, commentary, sectarian writings—as if a great cosmopolitan library had been left unattended for 2,000 years.

Photos: Denise Dias, Russell Vance. Judith Eger, Sarah Bush. Risa Levitt Kohn, Alexandra K.

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A Letter from our Director and CEO

How to Be Good—What the Ancient Texts Say

The Ten Commandments hold our attention at the ROM this year, inspiring public debate as well as appearing "in person" this fall in their earliest written form during our landmark exhibition *Dead Sea Scrolls*. They are among the foundations of our culture, recognized in the Jewish, Christian, and Islamic traditions.

Since the Second World War, the West has been preoccupied with human rights. History has demanded this focus. But the presence of the Ten Commandments reminds us that we also share a deep historical preoccupation with human obligations. Indeed, the better part of our history has been defined by obligations rather than rights.

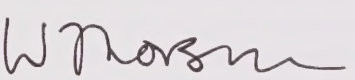
When we look at ancient documents, what do we find? What can we discern about "how to live a good life" in ancient texts across different civilizations? Comparing the Ten Commandments from the Dead Sea Scrolls and the 42 "commandments" in the Egyptian *Book of the Dead*, we see that many of the rules are similar, describing norms required for any workable community ("You shall not murder"—Exodus 20; "I have not killed men"—*Book of the Dead*). The similarities may also reflect the close proximity of peoples in the eastern Mediterranean, where these commandments originally arose. Some might also see the hand of an ultimately common deity in these texts.

The first four of the Ten Commandments refer to the relationship between humans and God, the other six to relationships among humans. If you wish to live a good life, you must live properly in connection to both. It is striking how similar this is to the "commandments" in the Egyptian Book, as expressed by the deceased as he makes his case for salvation before Osiris. "I have not blasphemed God in my city," he says. "I have not reviled God." But also (in part), "I have not done falsehood against men, I have not impoverished my associates..., I have not made suffering for anyone...." Many of the phrases have the ring of the Ten Commandments.

Recognized as authority in the Hebrew Bible, in the Old Testament of the Christian Bible, and in the Islamic Koran, the Ten Commandments embody common values across different traditions. But if you were solely a child of the Egyptian tradition, you would also share these values. There is not much evidence of a "clash of civilizations" in these texts.

Finally, there are some extra commandments in the Egyptian text, some of which are relevant to our own time. We find these strictures governing the relationship to nature: "I have not deprived the herds of their pastures, I have not trapped the birds from the preserves of the gods, I have not built a dam on flowing water." How relevant is this to our own time and place. Just this spring, the ROM opened the Schad Gallery of Biodiversity, which explores the symbiotic relationships in our biospheres—among the most urgent subjects of global discourse today.

It is timely to focus again on how to live a good life in the ethical sense—what our obligations are to God (if you wish), to ourselves, to each other, and to nature. And it is fortunate that the ROM has the means and mandates to assist.



WILLIAM THORSELL
DIRECTOR AND CEO

ROM Royal Ontario Museum

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Exhibitions and gallery openings

Exhibition curator Dr. Risa Levitt Kohn looks at the science of the Dead Sea Scrolls, page 22. ROM archaeologist Dan Rahimi examines how the community at Qumran was related to the Dead Sea Scrolls, page 18.

Lights in the exhibition will be dimmed to help preserve the fragile scrolls.

In the Spotlight

June 27, 2009 to January 3, 2010 **Feature Exhibition**
Garfield Weston Exhibition Hall, Level B2, Michael Lee-Chin Crystal

NEW Dead Sea Scrolls: Words that Changed the World

Among the Dead Sea Scroll texts are some of the earliest records of biblical patriarchs and prophets known to Judaism, Christianity, and Islam. For 2,000 years, these scrolls lay in desert caves above the salt-laden waters of the Dead Sea. Uncovered between 1947 and 1956 in 11 caves near Khirbet Qumran, and dating approximately to 250 BCE to 68 CE, the scrolls are one of the greatest archaeological finds of all time.

From more than 100,000 fragments of text, scholars have painstakingly assembled more than 900 separate documents. There are some 200 copies of books from the Hebrew Bible—some of them more than 1,000 years older than any previously known versions—apocryphal manuscripts, works that had previously been known only in translation, or that had not been known at all, as well as hymns, prayers, and other writings.

Sixty years after their discovery, there are numerous theories regarding the scrolls' origins. One view is that they were created by the Essenes, a group of Jews whose beliefs and practices differed from those of mainstream Judaism. When the Romans invaded their desert community around 68 CE, the Essenes are thought to have hidden the manuscripts in nearby caves. Other theories suggest the manuscripts have little or no connection to Khirbet Qumran, and may be more mainstream than previously thought.

Beginning in June, the ROM will display 17 authentic Dead Sea Scrolls—different scrolls during each of two three-month periods. This original ROM exhibition offers a once-in-a-lifetime opportunity to see the rarely- and never-before- seen scrolls. Lectures, symposia, and debates highlight the importance of the scrolls today, including their continued relevance to the Jewish, Christian, and Islamic faiths. More than 200 artifacts dating to 2,000 years ago—from the Israel Antiquities Authority and the ROM's own collections—illuminate the environment in which these ancient texts were written.

FIRST INSTALLATION
June 27 to October 9, 2009
Genesis, Psalms, Daniel, Barkhi Napshi (apocryphal psalms), Book of War, Messianic Apocalypse, Papyrus Bar Kokhba 44, Damascus Covenant

SECOND INSTALLATION
October 10, 2009 to January 3, 2010
Deuteronomy, Psalms, Isaiah, Isaiah Commentary, War Scroll, Communal Ceremony, Papyrus Bar Kokhba 46, Minor Prophets in Greek.

BEYOND THE EXHIBITION: Docents: In the exhibition hall, docents are available to answer questions. • Lecture series: The Anne Tanenbaum Lecture Series features leading Dead Sea Scrolls authorities (see page 44). • ROMkids Weekends: On weekends, a selection of programs will be offered. Go to **rom.on.ca/programs** or call 416.586.5797 for details. • *Dead Sea Scrolls* microsite: Go to **rom.on.ca/scrolls** to learn more, watch podcasts, and register for tickets.

Co-Chairs and Patrons: Mohammad Al Zaibak, Tony Gagliano, Jonas Prince and Families
Lecture Patron: Anne Tanenbaum Family
Exhibit Patron: Blyth Academy
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This exhibition was produced by the Royal Ontario Museum in collaboration with the Israel Antiquities Authority. The artifacts are on loan from the National Treasures of the Israel Antiquities Authority.

ISRAEL ANTIQUITIES AUTHORITY רשות העתיקות

Photos: Courtesy of the Israel Antiquities Authority

Out of the Vaults

Until October 18, 2009
Held over due to popular demand
Level 3, Centre Block

Book of the Dead

The *Book of the Dead*—an instruction guide to the afterlife—was hugely popular throughout ancient times in Egypt. See the ROM's version of this original best seller, one of the finest of its date, about 320 BCE, and 130 other Egyptian artifacts.

September 26, 2009, to January 3, 2010 **Feature Exhibition/ICC**
Roloff Beny Gallery, Level 4, Michael Lee-Chin Crystal

COMING SOON

Vanity Fair Portraits: Photographs 1913–2008

Throughout its 95-year history, *Vanity Fair* Magazine has helped define the public persona of some of the most influential individuals from the worlds of art, business, politics, and sport. *Vanity Fair Portraits* brings together a captivating collection of images of cultural icons from the magazine's vintage and modern periods.

June 27, 2009, to January 3, 2010 **Feature Exhibition/ICC**
Level 3, Centre Block

NEW

Margins: Contemporary Art Unraveling the Dead Sea Scrolls

Concurrent with *Dead Sea Scrolls: Words that Changed the World*, this newly commissioned contemporary artwork by Israeli artist Joshua Neustein explores themes and ideas suggested by the scrolls. This installation shapes a dialogue between the religious and cultural traditions described in the scrolls.
Presented by the ROM's Institute for Contemporary Culture and the Koffler Gallery of the Koffler Centre of the Arts.

October 10 to 18, 2009 **Feature Exhibition** Level 3
A Special Presentation (on display for 80 hours only)

COMING SOON

Ten Commandments **Deuteronomy 8:5-10; 5:1-6:1**

See the oldest written expression of the Ten Commandments.

Mysteries of Ancient Ukraine
The Royal Ontario Museum and the ROM Governors are pleased to thank the following for their generous support of *Mysteries of Ancient Ukraine: The Remarkable Trypilian Culture*:
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July 25, 2009, to spring 2010
Feature Exhibition
Wirth Gallery of the Middle East, Level 3, Michael Lee-Chin Crystal

NEW

Coffee & Smokes in Medieval Yemen

From the 9th to 17th centuries, the people of Zabid—a city at the south end of the Arabian peninsula—enjoyed an upscale urban life. Since 1982, ROM archaeologist Ed Keall has worked to evaluate the quality of life in medieval Zabid. He found that Ottoman soldiers in the 1500s to 1600s indulged in both coffee drinking and smoking—two habits new to the Middle East in that era. Read about it in the Winter 2006/2007 *Rotunda* magazine.

Photos: *Vanity Fair* Portrait, Hilary Swank by Norman Jean Roy, 2004 © Norman Jean Roy. Coffee and Smokes, ROM 965 x 276.1. Photo by Heidi Sobol.

SITTING BULL'S HEADDRESS See the war bonnet of this legendary Sioux warrior before it goes back in the vaults.

Until September 17, 2009 Ongoing Exhibition
Herman Herzog Levy Gallery, Level 1, Philosophers' Walk Wing

Brilliant Strokes: Chinese Paintings from the Mactaggart Art Collection

The forms used by ancient Chinese artists often related to their allegiances: the literati worked in an intentionally unrefined manner, for example; followers of the orthodox school strove to instill a spirit of antiquity in their compositions; and professional and court painters used highly polished, meticulous brushwork. The ROM has selected 17 fine examples of Chinese art from the Mactaggart Art Collection for display. Exhibition curator Dr. Ka Bo Tsang, a scholar of historical Chinese works, says of the paintings: "Even the casual observer can appreciate and be captivated by the unquestionable beauty of each work." *Exhibit Sponsor: Manulife Financial.*

Until November 15, 2009 Ongoing Exhibition
Gallery of Gems and Gold, Teck Suite of Galleries: Earth's Treasures, Level 2, Weston Family Wing

Light & Stone: Gems from the Collection of Michael Scott

"Collecting the world's largest and best examples of gem species has been my passion for almost 25 years," admits California-based collector Michael Scott, who was the first president of Apple Inc. He has been prodigiously successful at it, amassing a private collection rivalled by few outside royal families, which includes the world's largest faceted tanzanite and a huge Burmese ruby crystal weighing a staggering 10,041 carats.

Last Chance

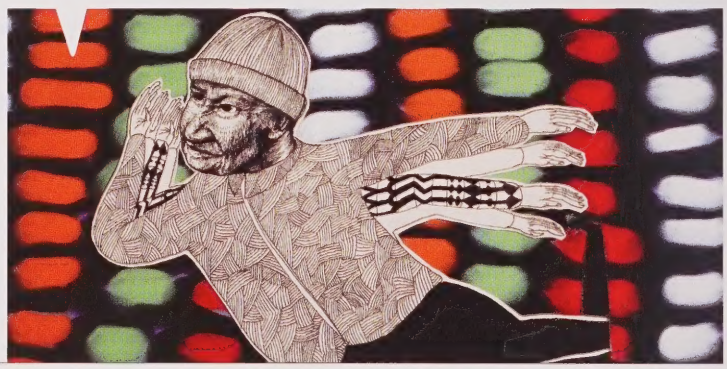
Until July 5, 2009 Ongoing Exhibition/ICC
Roloff Beny Gallery, Level 4, Michael Lee-Chin Crystal

Housepaint, Phase 2: Shelter

Homelessness and street art in Toronto may not at first seem to have much in common, yet both exist outside the "system," on the city's streets, left to their fates. A provocative installation at the ROM, *Housepaint, Phase 2: Shelter* examines questions of poverty and homelessness through the lens of 12 leading outdoor artists. Ten framed canvas "houses" form the cornerstone of the show, and are scaled in size to reflect the income ratios of Toronto residents.

"The show strives to amplify voices that are often marginalized," says ICC guest curator Devon Ostrom of them.ca, "while distilling the collaborative spirit of street art." Having one artist create works in response to another's as visitors watch is an untested approach for an established organization like the ROM, points out Ostrom, but one that offers the opportunity to raise awareness and provoke discussion of what's happening in our city. His description of the show as "an evolving process with uncertain ends" could be a summary of homelessness itself.

AUCTION: On June 10 at 7 pm the canvas houses were auctioned to benefit Habitat for Humanity Toronto.



Until July 5, 2009 Ongoing Exhibition
Samuel European Galleries, Level 3, Hilary and Galen Weston Wing

Wedgwood: Artistry and Innovation

Josiah Wedgwood, founder of the famed Wedgwood ceramics company, was known not just for fashionable products but for modernizing the English ceramics industry. One of the distinct wares he created was black basalt. The stoneware, sometimes called "Egyptian black," was made to imitate basalt, a stone often used in Egyptian statuary. To create the rich intensity of the black, Wedgwood added "car," a residue from streambeds near Staffordshire coal mines. The ROM owns the world's largest piece of black basalt, which was made in 1927 and weighs 800 pounds. The exhibition numbers more than 160 pieces, drawn almost exclusively from the ROM's Wedgwood collection, the finest in Canada. *Paint generously donated by: Farrow & Ball.*

BEYOND THE EXHIBITION: c5 Restaurant/Lounge offers a modern take on traditional afternoon tea, served on contemporary Wedgwood fine china. Thursday through Saturday, 3 to 5 pm.

Photos: Scroll painting, University of Alberta Museums, Mactaggart Art Collection, © University of Alberta Museums. Gems, Erica and Harold van Pelt Photography. Canvas house, Tyler Young. Wedgwood, Royal Ontario Museum © 2008. All rights reserved.

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Discoveries, Dispatches, and Discourse

Illustration: Jason Bourque, Florida Museum of Natural History. Photo: Dianne Scott, UTM.

Discovery

The Big One

ROM curators discuss a snake of unprecedented size

In February 2009, research associates of University of Toronto paleontologist Jason J. Head discovered fossils in northeastern Colombia belonging to what was once a monster of a snake. Named *Titanoboa cerrejonensis*, and estimated to have lived 58 to 60 million years ago, this snake at twice the size of the largest anacondas alive today, was about the size of a city bus. Because snakes use heat to drive their metabolism, this snake's size tells us that the temperature was hotter in the Paleocene tropics than scientists previously thought. Four researchers weigh in on the finding.

Jason J. Head, ROM research associate, has studied the giant snake. He holds a modern anaconda's vertebrae (right) and a vertebrae from *Titanoboa*.

What Happens with Heat?

Titanoboa was of truly enormous proportions. It was the size of a typical large predatory dinosaur—as long as a large *Tyrannosaurus rex* and as heavy as the top Jurassic predator, *Allosaurus*. The most interesting finding of this study is that snake body size seems to correlate with global temperature through geologic time: the hotter the climate, the larger the snake. We may be able to use snake fossils to predict some aspects of prehistoric climate for time periods and regions that until now have been poorly known paleoclimatologically. This finding may lead to research into climate-vs-size correlations in other animal groups, such as dinosaurs, and may lead to a better understanding of the relationship between climate change and animal evolution.
David Evans, Paleontologist

A Cultural Perspective

In China, sentiment for the snake is a mixture of hatred, awe, and fascination. The animal served as a totem symbol for some tribes in early ages. Later, the snake's long, scaly body gave rise to a mythical creature—the dragon. People of the Zhou dynasty (11th century BCE–256 BCE), who practised divination, believed that dreaming of a snake signified the birth of a baby girl. Snakes were captured and trained to provide street entertainment or sold to restaurants and apothecaries. Qu Dajun (1630–1696) noted in his *New Notes on Things in Guangdong* (Guangdong xinyu) that when a python was caught and killed in Yazhou, every part of it was used for some purpose. Even its eye sockets became amulets to protect the wearer from evil spirits.
Ka Bo Tsang, Far Eastern Scholar

How to Handle a Titanic Snake

Gigantism is fairly common in the animal world. But when is bigger better? Certainly, a big dish of mocha almond fudge ice cream is much better than a small one. But is a bigger snake better? And how much bigger is better? On islands, lizards tend to grow larger than their mainland relatives. The largest lizard, the Komodo dragon, lives on an island. But snakes tend to become smaller on islands. At 4 metres in length, boas and pythons can be dangerous to humans—they can kill. At 9 metres, the largest snakes that exist, it takes at least two people to handle the whoppers. So what should a herpetologist do if he or she encounters a live *Titanoboa cerrejonensis* at more than 13 metres long and 1 metric tonne in weight? There's only one choice: think teamwork!
Bob Murphy, Herpetologist

The Great Unknown

The discovery of *Titanoboa* indicates that we have yet to understand the physiological and biomechanical limitations on the evolution of giant snakes, and that the fossil record continues to provide unique information on the evolution of life.
Jason J. Head, ROM Research Associate

ICC In Conversation

Noah Cowan, artistic director of Bell Lightbox, the future home of the Toronto International Film Festival Group, spoke with Francisco Alvarez of the ROM's Institute for Contemporary Culture, about the ICC/TIFFG Future Projections collaboration.

Francisco Alvarez: The crossover between film and the visual arts has intensified exponentially in the last few years. Can you tell us about this phenomenon?

Noah Cowan: Film began its life tied to the hip of the visual arts and this strong intersection continued for decades, until the mid-1960s, by which time cinema had created its own relationship with audiences. It's only in the last half decade or so that we have once again seen a remarkable rapprochement between the two art forms. Painters, sculptors, photographers, and multimedia artists today are voracious in their interest in film and cinema culture. So, too, are filmmakers curious about the possibilities of out-of-cinema recontextualization of their work.

FA: How will this be addressed in the Festival's Future Projections series?

NC: We knew we needed a different approach from our traditional in-cinema experiences. So we approached cultural institutions and galleries in the city to partner in cross-media presentations. With the steady march of new media, cinema's primacy as the dominant way of understanding the world, visually, is challenged, and has become a powerful subject for study from the "outside," looking in. This can take many forms—projected art being one of them. But virtually all media have things to say about the codes of visual culture, so the work of Future Projections can range far.

FA: How do you select the works that would suit a display at the ROM?

NC: A few years ago I heard William Thorsell describing the powerful interplay between the ROM's two classic strands of Victorian curation—natural and social history—and the role he saw for the ICC in mediating between them. This same tension between the physical and the cultural also describes a history of visual art worldwide, especially film.

FA: This year, you have programmed Isabella Rossellini's witty short films on reproductive behaviour in the natural world, humorously titled "Green Porno." How do you think ROM audiences will react?

NC: I think the playful—often naughty—questioning of the didactics around natural history in Isabella's film is an intriguing contrast to the Museum's serious and meaningful commitment to the field. Contemporary art has the power to have us re-imagine the iconic items of civilizations past and the ordered world of nature around us.

See Future Projections during the Toronto International Film Festival, September 10 to 19, 2009.

Book tickets for the ICC's annual fundraiser Culture Shock: Celebrity Watch, September 23, 2009. Call 416.586.8064 (see page 41 for details).

Recent scholarship suggests that cubism was a direct response to cinema's ability to create multiple vantage points for the viewer.

Photo: Noah Cowan, Michael Buckner, WireImage

From the Archives

Strictly Far Eastern

How an uncompromising scholar whipped the ROM's Chinese Temple Setting into shape

In 1966, Asian art scholar Dr. Peter Swann became the Museum's director. He was a forceful exponent of dramatic presentation in museum display and really put the ROM on the map for the general public. He appointed Dr. Hsio-yen Shih as curator of the Far Eastern Department in 1968. With Swann's support she overhauled the East Asian Galleries, which then covered most of the Museum's third floor, and beautified the Ming Tomb area, tastefully making it into a Chinese garden planted with Chinese tree peonies and vinca ground cover. (She indefatigably organized the Far Eastern Department's staff to do all the work.)

Yen, as most of us called Hsio-yen Shih, was born in Hubei Province, China, in 1933. She was an uncompromising scholar who set high standards for herself and expected the same of those who worked with her. She was a powerful and demanding personality with discriminating tastes and had a talent for dividing any camp down the middle: into friends and foes. Yen took this talent to the National Gallery in Ottawa, where she served as director, and later to the University of Hong Kong, where she eventually became department head until her retirement in 1993.

In the 1971 photo above, Yen shows off the Ming Tomb to ROM Director Peter Swann (right) and Lee-Kuan Yew, Singapore's first Prime Minister. The 1961 photograph below captures some of Yen's potency. She has a soft smile but her eyes belie an intensity of intellect and observation. One had a feeling that she could see into your soul.

JACK HOWARD is librarian of the ROM's Far Eastern Library

News

Inside the Mummy Case

What CT-Scanning Revealed

The ROM has long been a leader in the field of mummy studies. One of the first modern autopsies on a mummy was performed at the ROM in August 1974 on the 3,000-year-old body of a young working man named Nakht. The 1994 CT-scan of Djedmaatiusankh—a young woman whose likely cause of death was found to be a tooth abscess—set a new standard for the study of ancient human remains, and inspired a wave of mummy studies around the world.

That tradition continues with new radiographic studies of three ROM mummies. In 2007, the ROM partnered with the University of Western Ontario in development of bio-archaeological analysis of human remains using radiographic techniques. The multi-disciplinary team led by UWO physical anthropologist Dr. Andrew Nelson and Dr. Rethy Chhem, chair of Radiology at the Schulich School of Medicine, performs CT-scans of the mummies at Victoria Hospital in London, Ontario, at night when the machinery is on stand-by.

In October 2007, three mummies were removed from the Museum's vaults for the trip to London. Two were infants from Roman times, and the third was a mysterious body found in a man's coffin dating to about 980 BCE. Analysis of the data continues, but the researchers have found that one of the babies was a six-month-old boy, and that the adult, as previously suspected, was actually a young woman, a mother who died before age 30. Here are some "before and after" images of the woman, a Lady of the House, Chantress of Amun— or a singer in the temple chorus—whom we call Justine.

GAYLE GIBSON is a teacher in the ROM's Education Department

News

Habitat for Humanity Camps at the ROM to Raise Awareness

Packed in, eight to each tiny 8-foot-square makeshift crate-like "cabin," 35 university and college students working with Habitat for Humanity camped out under the ROM's Michael Lee-Chin Crystal on Friday, March 27. The 24-hour event was part of Habitat Campus Coalition's annual Home-A-Thon to raise awareness of overcrowding and substandard housing in Toronto and let the public know how they can help.

The event was developed through a partnership between the ROM's Institute for Contemporary Culture and Habitat for Humanity, who are jointly presenting the ICC exhibition *Housepaint*, which runs until July 5, 2009, at the ROM.

New Acquisition

Giant of the Sea

How this leviathan provided convenient parking for fellow sea dwellers

Vertebrates were not the only giants in the sea during the Age of Dinosaurs. The ROM recently acquired a spectacular specimen of a rare giant fossil clam, *Platyceramus platinus*, that measures close to 4 feet across. Some grew even larger—to more than 6 ½ feet. The clams lived about 83 million years ago (during the Late Cretaceous Period) on a very soft muddy sea floor in what is now Kansas. Hundreds of growth lines similar to tree rings mark the ROM's clam. The large flat shape of the shell actually helped keep these clams from sinking into the mud, a phenomenon called the "snowshoe effect." The shells also provided convenient places for other organisms to settle without sinking. The ROM's clam supported several colonies of small oysters. Look for this giant in the Temerty Galleries of the Age of Dinosaurs.

JANET WADDINGTON is assistant curator in the Palaeobiology section of the ROM's Department of Natural History

The specimen was acquired with the generous assistance of the Louise Hawley Stone Charitable Trust.

Photo: *Hurdia* illustration modified from © AAAs–2009 (drawing by Marianne Collins). Millionth visitor, Miguel Hortiguela

News

Monster vs. Alien?

ROM helps identify a massive odd-ball predator

Collaborative research by an international team has solved a century-old mystery in the ROM's Burgess Shale collection. In an article in the prestigious journal *Science*, researchers corrected the description of a long-misunderstood 500-million-year-old creature. They discovered that what had been considered to be an animal called *Hurdia victoria* was actually just a small part of a larger and more complex creature, once a formidable predator in the Cambrian seas.

A team led by experts from Uppsala University in Sweden, including paleontologists from the ROM and the British Museum, made the discovery by comparing misidentified fossil fragments to those in the ROM's collection. Charles Walcott, the scientist who first discovered the Burgess Shale, assumed that the first *Hurdia* fragments were part of a crustacean-like animal and that other parts of the same animal were individual jellyfish and sea cucumbers.

His misidentification is not surprising. It turns out that *Hurdia* had a huge three-part carapace projecting from the front of its head, unlike anything seen in other fossils or living arthropods. "The use of this carapace is a mystery," says Allison Daley, the team's lead researcher. "In many animals, a shell protects soft parts of the body, but this structure in *Hurdia* is empty. We can only guess at what its function might have been."

Hurdia, an early offshoot of the lineage that led to modern arthropods—the large group that contains insects, crustaceans, spiders, millipedes, and centipedes—had defining arthropod features such as compound eyes and limbs, revealing that the origins of these features go far back in time.

Highlights from the ROM's extensive Burgess Shale collections will be on permanent display in the future Peter F. Bronfman Gallery of Early Life.

News

One in a Million

Milestone Marks the Highest Attendance in ROM's history

On March 24, 2009, the ROM welcomed its one millionth visitor of the year, marking the highest general-admission attendance in the Museum's history. John Corvaci, 26, of Hamilton, on a date with girlfriend Adina Marcu, received a surprise greeting by ROM dino mascots Gordo and Gertie, as well as a one-year ROM Family Membership and dinner at c5 Restaurant Lounge.

"I have great memories of coming to the ROM as a kid and seeing the dinosaurs," said Corvaci. "This is my first time back since then." First-time visitor Marcu especially wanted to see *Diamonds*. She was thrilled with what she referred to as the "VIP treatment."

SAVE THE DATE

Don't miss the ROM's best-loved fundraiser, **Fact? or Fiction? Get Real!** on October 22, 2009. Tickets: $250 each. Patron tables also available. Call 416.586.8064 for details.

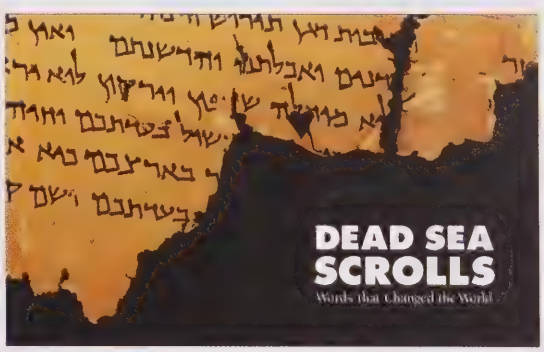
Book Shelf

Dead Sea Scrolls: Words that Changed the World

For nearly 2,000 years, caves in the Judean Desert sheltered hundreds of scrolls and fragments now known as the Dead Sea Scrolls. A collection of biblical writings, apocryphal manuscripts, prayers, biblical commentary, and religious laws, the scrolls are foundation documents of both the Jewish and the Christian traditions. As well, the Islamic tradition regards them as divinely inspired. Scholars recognized their monumental significance, and in time the scrolls captured the imagination of the world.

This authoritative guidebook to the ROM's blockbuster exhibition *Dead Sea Scrolls: Words that Changed the World* will provide visitors with deeper insight into the exhibition and serve as a keepsake of the event. The illuminating text is accompanied by photography of the parchments and contextual images of the Judean Desert and seascape. The book also includes a schedule of *Dead Sea Scrolls* lectures and programs at the ROM. $5.

GLEN ELLIS is head of Publications at the ROM



Old Testament, New Culture

Can we critique sacred texts?

BY MARK KINGWELL

In his brilliantly kooky 2002 book *Genius*—subtitled "a mosaic of one hundred exemplary creative minds"—the esteemed Yale University literary scholar Harold Bloom included, among obvious entrants such as Shakespeare and Milton, two biblical authors: Saint Paul from the New Testament, and "the Yahwist," or J, who wrote key sections of the Old. Paul's gentle phrases of spiritual instruction—"love is patient, love is kind," wisdom seen "through a glass darkly"—surely qualify him as a writer of gifts. But so do the poetry and sly Hebrew punning that J brings to *Genesis*: "And so the Lord God formed man [a-dam] from the dust of the ground [a-dam-ah] and breathed into his nostrils the breath of life."

Bloom was not the only critic to judge the Testaments to be great literature. Two decades earlier, Toronto's Northrop Frye crowned his career with *The Great Code* (1982), a work devoted to interpreting the Bible as the *ur*-text of all Western literature. It is, Frye wrote, "the imaginative framework within which Western literature has operated down to the eighteenth century and is to a large extent still operating."

Is that still true? Religious diversity, like all cultural change, shifts common touchstones farther away. Biblical references may yet strike a familiar note, but often in debased forms. Poor old Paul's subtle disquisition on love, for example, by which he meant *agapé* or *caritas*—unqualified care for another, not romantic love—is invoked off-point at weddings almost as often as Shakespeare's Sonnet 116, whose speaker admits impediments to the marriage of true minds in the very act of denying them. (Worse still are those witless after-dinner speeches that quote pompous Polonius without irony—"To thine own self be true"—or piously echo homicidal Othello decrying the filching of one's good name.)

Meanwhile, believers regard literary appreciation of a sacred text as at best irrelevant and at worst dangerous. Despite much controversy about the provenance and accuracy of scripture, once it is made canonical within an established religion, interpretation becomes a matter not just of academic interest but, sometimes, of life and death. Mosaic law is now an eternal truth, not a cultural report. The Koran, with its own considerable literary merits, sets down the words of the Prophet, not a string of narrative and imagery.

We cannot treat sacred texts only as texts, then, but neither should we take their sacredness as impregnable. I think what they show, most of all, is how important the act of writing is to human civilization. We are moved to inscribe—on parchment or papyrus or linen, in Aramaic or Greek or Hebrew—what we think is essential. We record beginnings and endings, ideas concerning the nature of things, instructions on how best to live in this vale of tears. Paradoxically, the word "record"—from Latin *re-cordare*—means "to keep in the heart." We write so that we may go on remembering, generation after generation, learning by heart the wisdom of the ages.

"In the beginning was the Word," another Biblical genius would later write. Yes, and in the end, too. ○

MARK KINGWELL is professor of philosophy at the University of Toronto, former chair of the ROM's Institute for Contemporary Culture, and contributing editor of *Harper's Magazine*. He is the author of, most recently, *Concrete Reveries: Consciousness and the City* (2008), and *Opening Gambits: Essays on Art and Philosophy* (2008).

Illustration: Bob Hambly

Head Down in the Paleozoic Sea

This may be how one clam-like mollusc made its living 400 million years ago

BY DAVE RUDKIN

Q **My 10-year-old son, Evan, has become fascinated with fossils since his grandparents bought land on the Ausable River at Hungry Hollow in southwestern Ontario. He and his best friend often bring home interesting rocks and fossils. Recently, they found one that I'm unable to identify. I thought the first specimen was a geologic anomaly but the boys brought home two more, and showed me others in larger rocks. Any help will be greatly appreciated.**
— M. Gibson, Ingersoll, Ontario

A Thank you for your inquiry. The accompanying images are excellent, and that made the task of identifying your three mystery fossils a breeze! They belong to an extinct group of sea-dwelling molluscs known as the Rostroconchia. Although vaguely clam-like in appearance, ancient rostroconchs built their peculiar shells without a functioning hinge, so they couldn't actively open or close them as clams do. One end of the rigid structure has a tubular, beak-shaped extension called the rostrum, from which the group name is derived. Rostroconch means, literally, "beak-shell."

The oldest known rostroconch fossils are of early Cambrian age (about 520 million years old) and the last members of the lineage died out before the end of the Permian Period around 255 million years ago. They seem to have been most diverse and abundant early in their history, but larger ones, with shells reaching some 15 centimetres in length, evolved during the Devonian Period. More typically, rostroconchs were the size of Evan's specimens or smaller. Some very early forms were microscopic.

As with all fossil organisms having no modern direct descendants, we are left to ponder precisely how the rostroconchs made their living in the seas of the Paleozoic Era. We can pick up a few clues by observing modern Scaphopoda, a surviving group of marine molluscs with tapered, tubular one-piece shells open at both ends. The scaphopods (or "tusk shells") burrow into sea-floor sediment using their muscular "foot" and live head-down. Just the narrow end of the open shell extends above the seabed, allowing oxygenated water to be drawn into the shell and pumped out again. Scaphopods gather tiny food particles from sea-floor sediment, bringing them to their mouths with thread-like tentacles. It seems likely that the extinct rostroconchs lived in much the same way, with the broad part of the shell buried and the beak extending into the water.

Whether they gathered food in scaphopod fashion, or filtered particles from the water column, remains a matter for further investigation. Some paleontologists have suggested that scaphopods may have evolved from a rostroconch ancestor, but others argue for a closer relationship between bivalved molluscs—clams and their kin—and Rostroconchia. The particular rostroconch that your son and his friend found has the formal name *Conocardium cuneus*. While not especially common in the approximately 400-million-year-old sedimentary rocks that underlie southwestern Ontario, *Conocardium* does show up with some regularity in certain limestone units, often in the company of other fossils such as large brachiopods and a variety of extinct corals. I suspect that Evan's specimens may have originally come from somewhere other than the generally shaley rock formations at Hungry Hollow. Quite possibly they weathered out of blocks of limestone that had been glacially transported to the area, or were perhaps trucked in from a quarry some kilometres to the east.

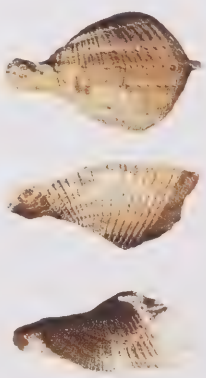
I hope this helps. Please do let me know if you have any further questions. ○

DAVE RUDKIN is assistant curator of Invertebrate Paleontology in the ROM's Department of Natural History.

The ROM has a remarkably diverse staff available to answer questions about objects and specimens. Write us at Ask an Expert, *ROM* Magazine, 100 Queen's Park, Toronto, ON M5S 2C6. Please include colour photographs of the object.

Above: Evan's rostroconch measures 65 mm x 30 mm x 15 mm.

Below: Three views of the ROM's *Conocardium*. It is part of the Invertebrate Paleontology teaching collection.



Photos: Top, courtesy of M. Gibson. Bottom, Dave Rudkin.

The first duck-billed dinosaur skeleton, still in its plaster field jacket, being collected in southern Alberta.

Life reconstruction of *Brachylophosaurus*, a species of duck-bill found in southern Alberta. The skeleton of Hadrosaur 1 may represent one of these.

The Dinosaur Diaries

What we found in the Alberta Badlands last summer

BY DAVID EVANS

For the past four years, I have been leading a project with colleague Michael Ryan from the Cleveland Museum of Natural History to collect dinosaurs from poorly known rock strata in southern Alberta—the Milk River Formation and the lower Belly River Group. The project has been a bit of a calculated gamble. While these rocks had not produced the prodigious numbers of fossils found at other sites in the Alberta Badlands, the time period they represent is one of the least known of the Late Cretaceous. Our premise was that if we did hit pay dirt, the dinosaurs would likely be new species, and we could start to fill in a critical gap in scientific knowledge of this period.

This year the gamble really paid off. Over a period of five weeks from June to August 2008, our field crew—including ROM technician Ian Morrison, colleagues from the Royal Tyrrell Museum, graduate students, and volunteers—collected more than 100 fossil specimens, several of them large skeletons. It was our most prolific field season in this part of Alberta. Here are some highlights.

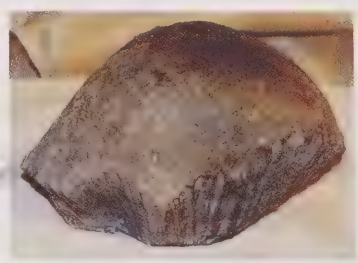
Hadrosaur 1 The first skeleton we uncovered was a large hadrosaur, or duck-billed dinosaur. It is intact from the hips forward but because the neck vertebrae dip into the rock, we can't tell whether there's a skull attached. Since the skeleton was joined very tightly together we decided to collect it in one huge 6,000-pound field jacket to minimize damage. The block was so big it had to be pulled out using giant trucks manned by oil-rig crewmen who volunteered to help.

Hadrosaur 2 and Kids In older sediments, we found more hadrosaur fossils. The Discovery Channel filmed the excavation of a second skeleton, which was also partly articulated—the bones were attached together—but less complete. We hope to find more of this duck-bill in the ground this summer. A few kilometres away, and in the same strata, we uncovered a remarkably rich bone bed containing juvenile duck-billed dinosaurs. They are about half adult size, and there are many of them—at least six. The strata at these sites is particularly poorly known, and these fossils almost certainly represent one or more new species, preserved at different growth stages.

Definitely a New Dome Head Perhaps our most exciting discovery was a complete skull dome of a pachycephalosaur, or dome-headed dinosaur. There's no doubt that it's new to science. The find is important because it represents the oldest known member of this group in North America, and maybe the world. A scientific paper naming the new species will be published next year.

To-Do List Excavation will continue at the two hadrosaur sites this summer, but we'll also be digging at new ones. Last summer, the team prospected for future dig sites and identified several important projects for this year's excavations—an armoured dinosaur skeleton and a rich horned-dinosaur bone bed. o

DAVID EVANS is curator in the Palaeobiology section of the ROM's Department of Natural History.

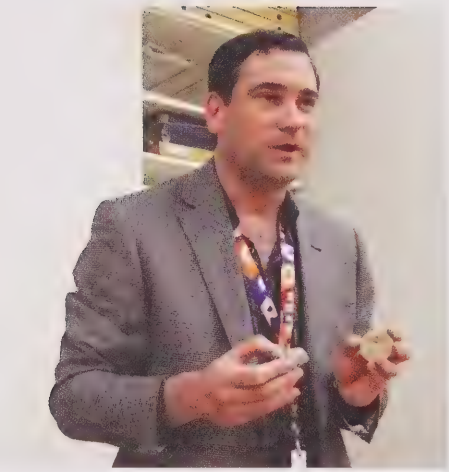


The complete skull cap of a new species of pachycephalosaur, or dome-headed dinosaur, found last summer in the Milk River Formation.

Rocking the Cradle of Civilization

A ROM archaeologist is unearthing the story of one of the earliest cities in the ancient Near East

BY LEE-ANNE JACK



Dr. Clemens Reichel
ASSOCIATE CURATOR
(ANCIENT NEAR EAST)
Department of World Cultures

Academic Positions
2008–present
Assistant Professor (Mesopotamian Archaeology)
Department of Near and Middle Eastern Civilizations, University of Toronto

2001–2008
Senior Research Associate
Oriental Institute, University of Chicago

Education
2001
Ph.D. in Archaeology, University of Chicago
1990
M.A. in Archaeology, University of London

ROM archaeologist Clemens Reichel's choice of career was decided, quite literally, by the flip of a coin—prehistory of the Roman provinces? Or the Near East? The coin said Near East. Reichel's mother was initially less than excited about archaeology, although she had taken Clemens to Rome as a boy, where he was fascinated not just by the architecture of the Forum, but by the piles of dirt—archaeological layers yet to be dug up.

He dutifully signed up for theoretical physics as a back-up plan. But in his first archaeology class, the Freiburg, Germany, native was instantly seduced by the "foreign magnificence" of the names of Babylonian and Assyrian kings. For the last 10 years, Reichel, who came to the ROM from the University of Chicago's Oriental Institute, has been digging at Hamoukar, a large site in northeastern Syria (and his mother is now very proud). As the project's director, he oversees 100 workers each field season, excavating the remains of a surprising discovery: one of the earliest cities in the ancient Near East dating to between 4000 and 3500 BCE. The site challenges the long-held opinion that the earliest cities were those of southern Mesopotamia (now southern Iraq).

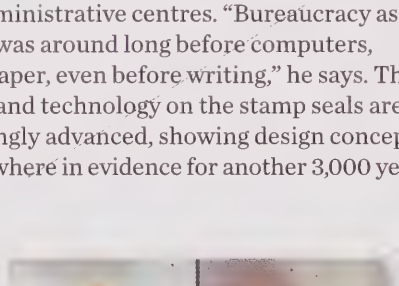
Finding clues to solve mysteries is a critical skill in the field, and Reichel sifts through artifacts and potsherds, trying to decipher exactly how this city operated. Thousands of stamp seals tell him that two of the buildings were administrative centres. "Bureaucracy as we know it was around long before computers, before paper, even before writing," he says. The artistry and technology on the stamp seals are surprisingly advanced, showing design concepts not elsewhere in evidence for another 3,000 years.

Above: Ancient bureaucracy: front and back of bone stamp seal, c. 3500 BCE

But these discoveries raised a larger question: why did this large urban centre arise here, far from any known river? Reichel's conclusion? That the site was an industrial base—"an ancient Pittsburgh," rich in raw materials. Nearby, the team found a vast area covered with obsidian fragments, including lithic cores, confirming that it was a production site. Southern Mesopotamia, which had no raw materials, was the likely market for Hamoukar's stone tools, which were probably shipped overland on a nearby route from Turkey into southern Iraq. The discovery of blow pipes and crucibles suggests that Hamoukar kept up with technology—eventually replacing its stone industry with copper works.

Hundreds of ovoid lumps of clay, originally registered as "tokens," gave Reichel his smoking gun—he recognized them as sling bullets. The city was felled by warfare around 3500 BCE. Pottery at the site led Reichel to conclude that the attackers came from the south, though the reason for the attack is not known. "Maybe they were extorting the southerners with inflated prices," suggests Reichel, "which was a bad idea for them."

While much remains to be excavated at Hamoukar in coming years, it's already obvious that these discoveries will force a significant rewrite of Syria's role in early Near Eastern history. A decade after starting work in Syria, the daily picking, shovelling, and sieving hasn't dampened Reichel's early fascination with the Near East. "It's still wildly romantic to be there," he admits. o



Above: Obsidian cores; Grooves indicate where blades were flaked off, c. 4200 BCE.
Right: Two sling bullets, clay, c. 3500 BCE.

Photo: Dr. Clemens Reichel, Ross Chandler, Artifacts, Clemens Reichel

ONTARIO

Janet Waddington
ASSISTANT CURATOR
Invertebrate Paleontology

The Late Silurian Eramosa Formation on the Bruce Peninsula, a significant source of building and dimension stone for the construction industry, is also the subject of much scholarly interest for its extraordinarily preserved fossils. Waddington is currently studying fossil scorpions that originated from active quarries or from loads of stone headed for landscaping projects. A new species offers insights into how animals made the transition from water to land.

ONTARIO

Kenneth R. Lister
ASSISTANT CURATOR
Anthropology

Over the past three years, Lister has travelled along the Kaministiquia River–Dog Lake fur-trade route in northwestern Ontario, retracing Canadian artist Paul Kane's 1846 journey and searching for sites that Kane sketched during that trip. Of particular note, Lister identified the portage landing depicted in Kane's painting *French River Rapids*—a landing that had been lost to memory. The discovery has reclaimed the landing's role in Canada's fur-trade history. Test excavations have uncovered artifacts dating to the mid-19th century, and the ROM and Quetico Provincial Park plan a full excavation of the landing site in 2009, the park's centennial year.

GHANA

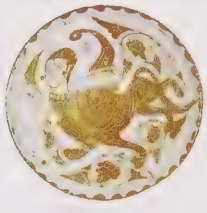
Silvia Forni
ASSOCIATE CURATOR
Anthropology

Silvia Forni is starting a project on the aesthetics of funerary displays and death celebrations in Africa. While celebrations of death, ancestor worship, and associated performances are the purposes for which many of the objects in museum collections were originally conceived, the importance of funerary display is not a thing of the past. It continues to be a driving inspiration for creativity in many parts of the continent. The first collecting destination will be Ghana. In the town of Teshie, on the outskirts of Accra, several workshops produce colourful coffins in the shape of cocoa beans, onions, hens, fish, airplanes, luxury cars, cell phones, and other icons of worldly success, to celebrate the lives of prominent deceased.

SYRIA

Robert Mason
MATERIAL SCIENTIST
Near Eastern and Asian Civilizations

After some years undertaking multi-disciplinary research on Islamic-period pottery from the Middle East, for the past 10 years Robert Mason has focused his fieldwork in Syria. He has excavated at the citadel of Aleppo and at a "lost" Crusader castle in western Syria, and now he is working in the desert 90 km north of Damascus at the remote monastery of St. Moses. He continues to investigate the pottery of the Islamic world. One question he is researching right now is "what exactly *is* the creature on this c. 1100 Syrian bowl from the ROM's collection?"



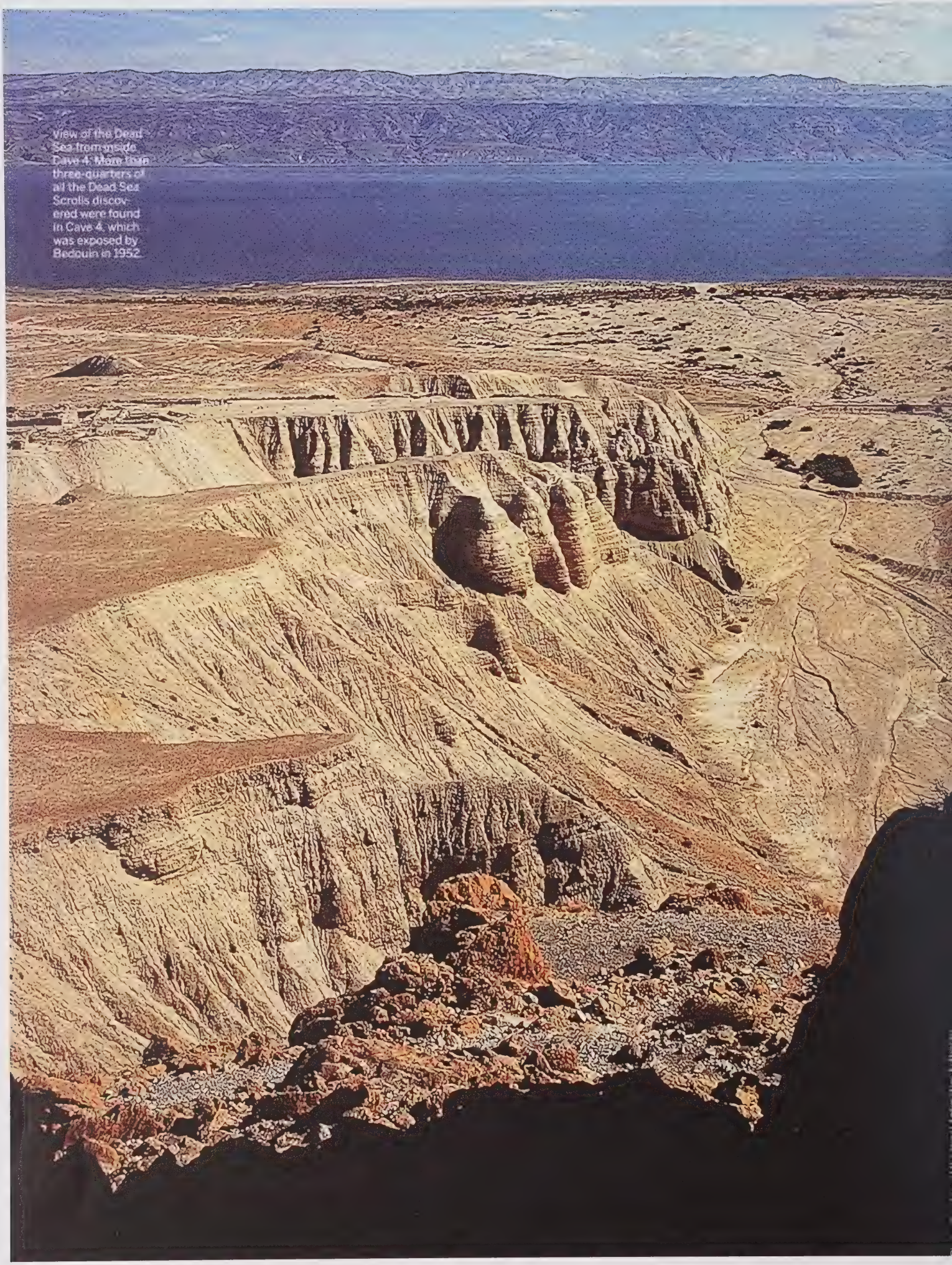
SOUTHEAST ASIA

Judith Eger
SENIOR CURATOR
Mammalogy

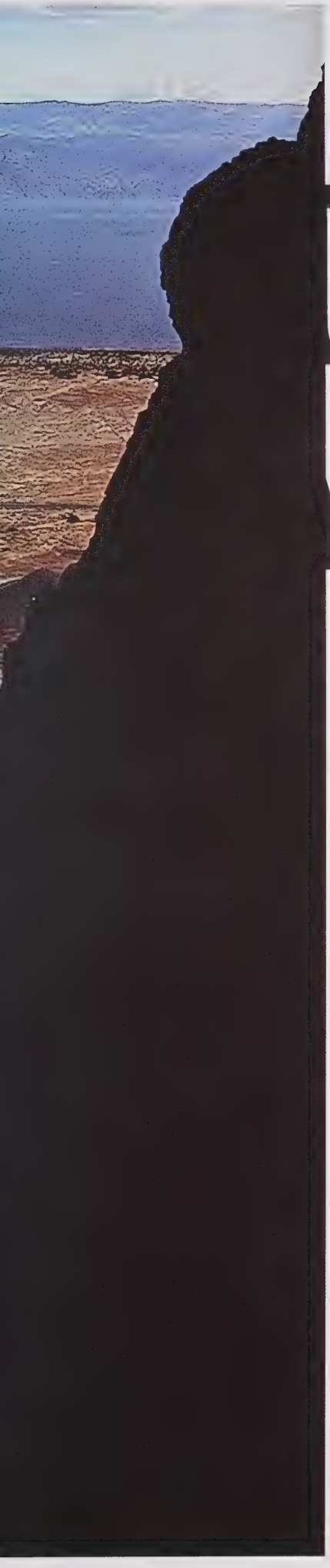
A 40-year veteran of the ROM, Judith Eger has research interests in the systematics and biogeography of bats of Madagascar and Asia as well as mammals of the Canadian North. Her current research concentrates on tube-nosed bats of Southeast Asia, using morphology and DNA sequencing. Fieldwork has taken her on eight expeditions to Vietnam and China, where along with colleagues from the ROM and the USA, she has been participating in studies of biodiversity of northern Vietnam and southwest China. On several occasions she has returned with a new species of bat.

Where in the world are they?

The who, what, and where from our international curatorial team



View of the Dead Sea from inside Cave 4. More than three-quarters of all the Dead Sea Scrolls discovered were found in Cave 4, which was exposed by Bedouin in 1952.



Mystery Writers

A long-accepted theory about who wrote the Dead Sea Scrolls caves under scrutiny

BY DAN RAHIMI

Standing in the ancient settlement of Khirbet Qumran on the shores of the Dead Sea, a teenager with a good arm could throw a stone into Cave 4. This is the cave—an artificial cavity dug from the soft marl with great effort in ancient times—in which scrolls yielding more than 500 manuscripts of biblical text and other documents were placed 2,000 years ago. What we don't know is who put them there.

It would only be natural to assume it was the inhabitants of the settlement. But, increasingly, researchers are challenging this assumption. We must ask whether we really know who deposited the scrolls—and ultimately, who wrote them.

The modern story begins with another stone thrower about 60 years ago. In 1947, a young Bedouin shepherd, Muhammad ed-Dhib, threw a stone into a nearby cave while looking for one of his flock. The sound of breaking pots intrigued him, and led him to find—in what came to be known as Cave 1—the first seven of the Dead Sea Scrolls. The scrolls were poorly understood at first and, complicated by the unrest of the 1948 war, it took a year to verify the antiquity of these documents and for the significance of their content to emerge. But when it did, the scrolls made international headlines—and history. Written in Hebrew, Aramaic, and Greek, here were the earliest known versions of nearly every book of the Hebrew Bible together with a large group of non-biblical texts—liturgy, hymns, commentary, and the rules and writings of a community whose identity is still not known.

The end of the British Mandate and of the 1948 war allowed archaeologists to begin systematic work in Wadi Qumran, a tough, fissured landscape whose water was supplied by the run-off of seasonal rains in the Judean hills to the west. Arid and inhospitable, the hills were dotted with empty caves, and the only present-day communities were situated at spring-fed oases near the Dead Sea. The ancient pile of rocks known as the settlement of Khirbet Qumran—"the ruins of Qumran"—was regarded by archaeologists as an impoverished site of little interest.

In 1949, the ruins, the caves, and the surrounding land were part of the Hashemite Kingdom of Jordan. Directed by G. Lankester Harding, who was keen to explore the wadi, the Kingdom's antiquity service stepped in to search the area for more scrolls. Harding found the perfect investigator in Father Roland de Vaux, Dominican priest, biblical scholar, excavator of a Bronze-Age settlement, and head of the Church's École Biblique in Jerusalem. Together they excavated Cave 1, finding remnants of parchment scrolls and pottery that the original Bedouin discoverers had left behind.

Right: Muhammad Ed-Dhib, a Bedouin of the Ta'Amireh tribe, probably found the first Dead Sea Scrolls in 1947. This photograph was taken in 1961, about 15 years later.

Father de Vaux was aware of the ruins in Qumran, and quickly realized their potential significance. Since the site and the scrolls dated from about the same period, he wondered whether there might be some connection between them. In 1951, as interest in the scrolls continued to grow, he began excavation of the settlement. De Vaux knew that the texts of the biblical scrolls were extremely close to the known Hebrew Bible; but he wondered who wrote them, and how they got to the caves of Wadi Qumran.

It seemed to de Vaux that the non-biblical scrolls provided the kernel of an answer: they described the rules and beliefs of a religious community, ascetic in its practices, and understood to live outside the mainstream. Roman writers of the period had described such a group in the Dead Sea region, calling them Essenes. Were the puzzle pieces falling into place? Could the remote, poor site of Qumran have something to do with the Essene sect—and ultimately the writing and storage of the scrolls?

Six seasons of excavation at Khirbet Qumran seemed to vindicate de Vaux's hunch. The scrolls had provided him with an interpretive guide to digging and understanding the site. The first thing he noted was the multitude of pools, which he took to be ritual baths (*mikva'ot*) of observant Jews in the Second Temple period. The community-centred scrolls revealed the intense preoccupation of its members with ritual purity and purification, and here, for de Vaux, was the evidence—a great number of pools for the daily ritual. In the centre of the settlement he found a large rectangular room beside a smaller room that contained more than 1,000 small bowls, cups, and plates. De Vaux read this room as a communal dining hall, or refectory, situated beside a pantry. The scrolls spoke of members and acolytes taking communal meals, and here again was the corresponding evidence—the dining room of the monastery.

Photo: © John C. Trever, PhD. Digital image by James E. Trever.

Most important were the remains of a collapsed, second-storey room that included pieces of brick and plaster, which the excavators later reconstructed to form a bench or table. Incredibly, the room also contained two small inkwells—rare finds in Herodian times. Here, thought de Vaux, was the final proof: the writing hall, or "scriptorium." The tables were understood to be writing surfaces or writing benches. Although not a trace of parchment was found in the room, the inkwells served to seal the case. To de Vaux, the Essene sect must have lived in the Qumran settlement, following close rules of community order, and it was there that they had copied and written the scrolls.

For 40 years, de Vaux's theory was celebrated and accepted by virtually every scholar in the field. But eventually, historians, textual scholars, and archaeologists began to have doubts. From an archaeological standpoint, de Vaux's conclusions may not be the only way to interpret the site. Recent excavators of Qumran, for example, believe that the site was likely an industrial facility, a ceramics factory. In this view, rainwater from the mountains was collected in settling pools (not ritual baths at all), so that the fine silt clay that was carried by the water in its journey down the mountain could be used to make pottery in the many kilns of the site. This argument has not been fully proved, but it shows that if one distances the interpretation of the *site* from the content of the *scrolls*, new ways of understanding the site can be found.

Scientific objectivity is a key principle of archaeology. Under the pressure of the international scrutiny and excitement surrounding the discovery and decipherment of the scrolls, some of that objectivity seemed to have been lost. Influenced by the scrolls, de Vaux found what he was looking for in the ground at Khirbet Qumran. But was it an over-zealous conclusion? Believing the scrolls came from the settlement, he used the scrolls to interpret the site, and then used the archaeology of Qumran to connect the scrolls to the site, completing a circle of reasoning.

In the end, the problem of Qumran and the scrolls may be more epistemological than archaeological. Forty years of scholarship by biblical and textual researchers has conflated the data—the scrolls and the excavation were not considered separately at all. On the other hand, recent archaeology has attempted to excavate and interpret as if the scrolls never existed—an equally flawed approach.

But there is still a chance to achieve a balance. There is a need for archaeologists to work systematically, to establish hypotheses for interpreting the site, and to assess the data objectively. Only then can the connection between the scrolls and the site be fairly considered. ○

Left: Lankester Harding (right) of the Department of Antiquities of Jordan and Father Roland de Vaux of the École biblique in Jerusalem excavating at Khirbet Qumran, c. 1950s. The two led the first excavations of this ancient settlement.

Food and Drink at Qumran

A look at what was on the menu in this ancient settlement

It rained little at ancient Qumran. Certainly not enough to grow common crops without irrigation, and water was precious. Even so, there is good evidence that local produce was grown at the site. While it was not a daily event, people ate meat from locally raised animals—sheep, goats, and cattle. In a curious habit, remains of meals were deposited in jars and buried on the site, a practice that allows us today to reconstruct the diet of Qumran's residents.

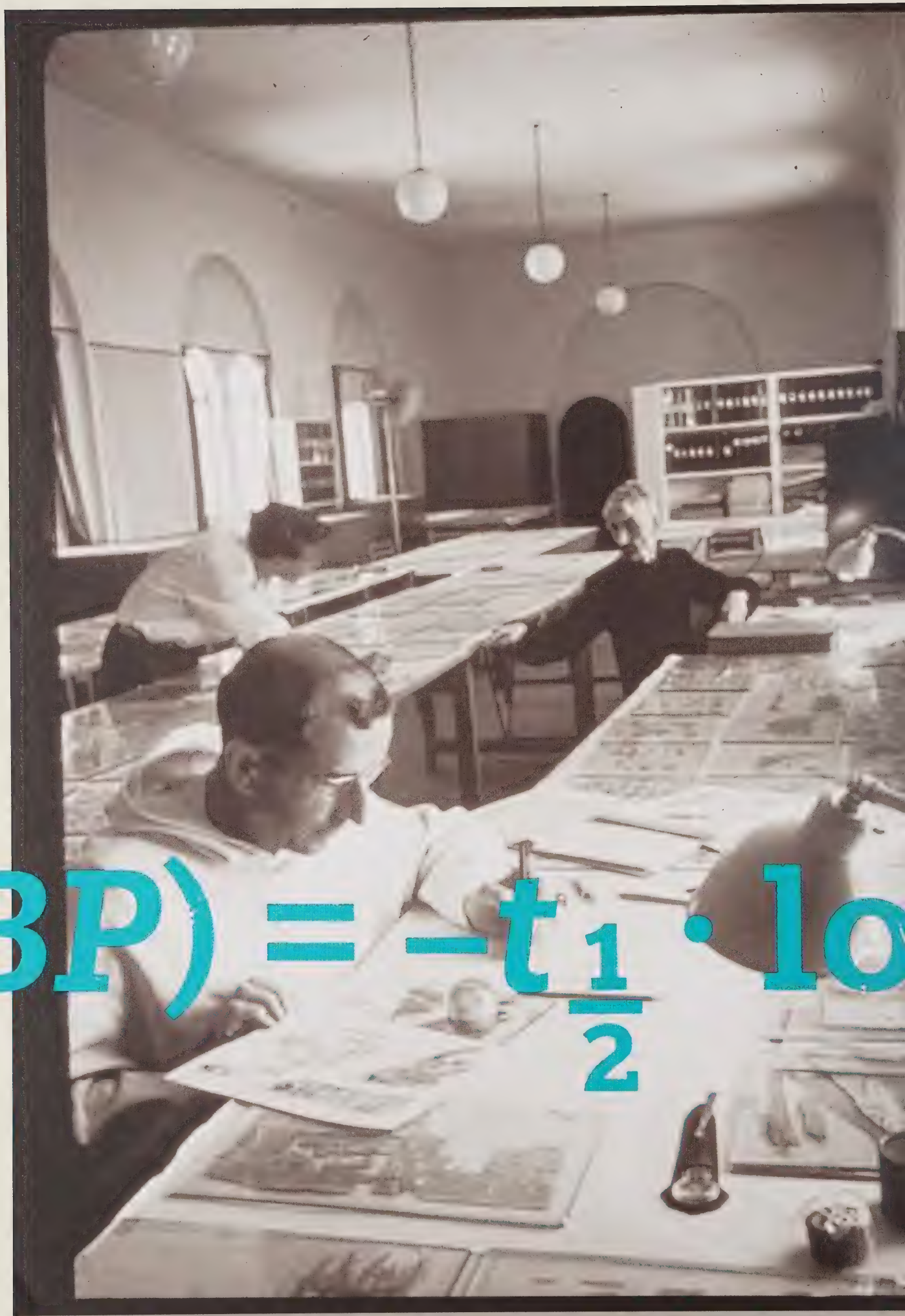
Bones reveal that dishes of lamb or mutton, goat, or beef, were either boiled or roasted. A flour mill and small silos stored and milled flour from grain, probably grown just south of the site at the oasis of 'Ein Feshka. At the same site, grape vines and an abundance of date palms also grew. Wine was certainly made locally, since a small wine press was discovered at the site. And a structure known as a columbarium, or dovecote, shows that pigeons were raised on site—birds that remain a Middle Eastern delicacy to this day. Considering the number of shallow bowls that have been found, we can imagine the culinary picture: bowls of meat stew in times of plenty; and as daily fare, bowls of vegetables, oil, wine, vinegar, and dates, all dipped with local bread.

Thousands of date pits were found at Khirbet Qumran. Dates were an essential part of the local diet, and the date palm would have grown well in the brackish waters of the nearby oasis. Eaten dry or cooked, dates could also be processed to a rich syrup, often called date honey, though it is not a true honey. Date syrup is cooked down from the fruit, is rich in vitamins, and is very sweet. In fact, date syrup is the principal traditional sweetener in the Middle East. It is likely that many biblical references to honey are really about the sweet syrup of the date. Dates offered more prosaic uses as well; their pulp when pressed could serve as animal fodder, and the pits could fuel the ovens and kilns of Qumran.

In antiquity, Qumran was not a rich site, and luxury goods were few. But down the road at Masada, King Herod had a palace that imported the finest foodstuffs. While the denizens of Qumran drank local wine, Herod had his sent from Italy. A broken Roman wine amphora (a ceramic vessel specialized for shipping precious liquids) at Masada bears the inscription "To Herod, king of Judea." A second amphora bears traces of an equally interesting content, albeit less alluring to many Canadian palates: *garum*, or fish sauce, sent from Spain. Garum was an essential ingredient in fine Roman dining across the Empire. A variety of fishes was mixed with brine and left in the sun to ferment for up to three months. The clear liquid the mixture produced was drained off and bottled as the finest condiment on the Roman table.

Photos: Top, ©École biblique et archéologique française de Jerusalem. Pots & bowl, courtesy of the Israel Antiquities Authority. Goat, iStockphoto.com/© Eric Isselée. Dates, iStockphoto.com/© Georgina Palmer. Cow, iStockphoto.com/© Patrick Lavedant.

Jozef Milik pieces together scroll fragments in the "scrollery" of the Rockefeller Museum, c. 1950s.



$$t(BP) = -t_{\frac{1}{2}} \cdot \log$$

BY RISA LEVITT KOHN

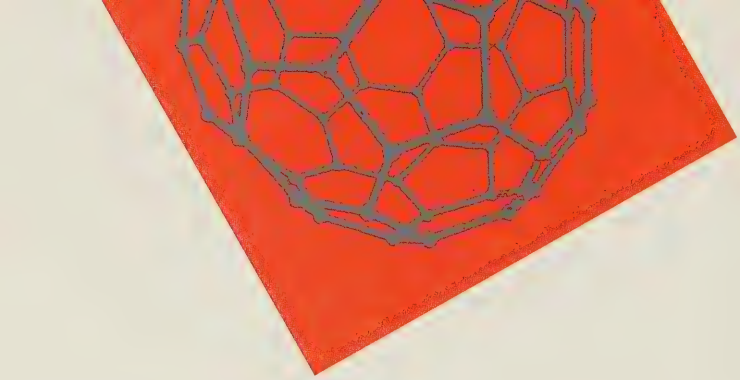
SCIENCE *of* *the* SCROLLS

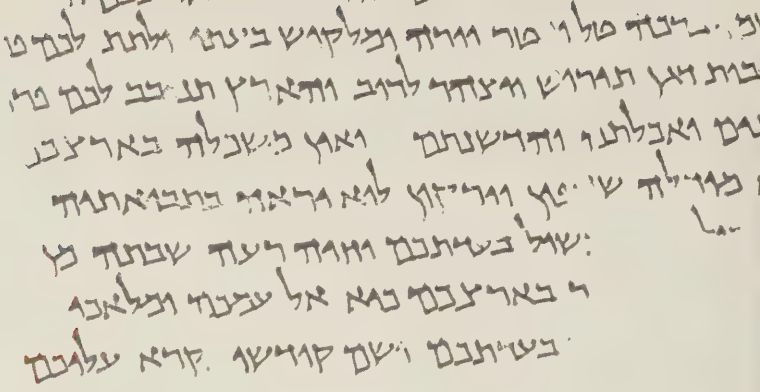
HOW FAR-REACHING TECHNOLOGIES HELP RESEARCHERS UNSHROUD THE MYSTERIES OF THE DEAD SEA SCROLLS

$$N_2 / N_0$$

Long shrouded in mystery, the precise meaning and origins of the Dead Sea Scrolls elude us still. Science and technology are light years ahead of where they were when the first scrolls were discovered in 1947, and new research methods, tools, and technologies have deepened our understanding of the scrolls by unlocking more and more information. Even so, key questions remain unanswered: Who wrote the scrolls? Where were they written? Which fragments belong together? And, perhaps most pressing, can we halt their relentless decomposition? Herewith, a tour through some of science's best tools for investigating these questions.

Photo: Courtesy of the Israel Antiquities Authority





Below: Monsignor Patrick Skehan, John Strugnell, and John Allegro sort fragments in the Rockefeller Museum's "scrollery," c. 1950s.

$$t(BP) = -t_{\frac{1}{2}} \cdot \log_2 \frac{N}{N_0}$$

A Good Year for Dating

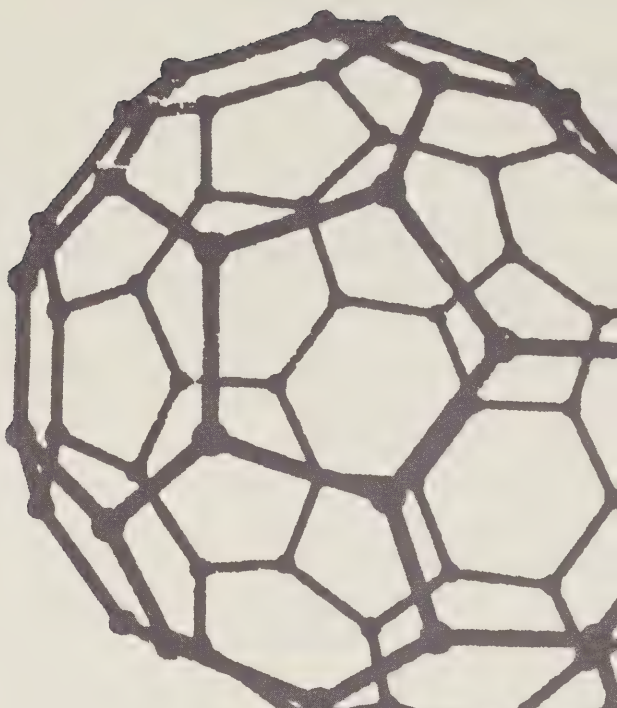
As fortune would have it, a scientist named Willard Libby developed the carbon-14 dating method in 1949—just two years after the first scrolls were discovered. This method, also called radiocarbon dating, can accurately date biological matter up to 60,000 years old. In 1960, Libby received the Nobel Prize in Chemistry for this discovery.

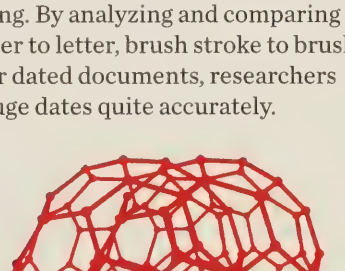
Thanks to carbon-14, we've been able to date the Dead Sea Scrolls, most of which are made from goat skin. The element carbon is the building block that makes life possible. There are several types, or isotopes, of carbon. C-12 is stable, but C-14 is radioactive and decays slowly, becoming nitrogen-14 over time. As long as an organism is alive and well, the proportion of C-12 to C-14 remains stable. However, as soon as an organism dies—for example, the goat whose skin was used to make parchment for the Dead Sea Scrolls—the ratio of C-12 to C-14 begins to change at a constant, measurable rate.

C-14 has a half-life of about 5,730 years, which means that after 5,730 years have passed, half of the C-14 atoms have decayed to nitrogen-14. By looking at the ratio of C-12 to C-14 in a sample and comparing it to the ratio in a living organism, it is possible to determine the age of a formerly living thing fairly precisely. (This technique is also used with other radioisotopes, including potassium-40 and uranium-235.)

Unfortunately, the first scientists using this technology had much less sensitive machines than those in use today, and large amounts of material were required to date items—several grams, in fact. In order to date a scroll, scientists would virtually have had to destroy it. The first attempts to date the scrolls relied on another technique: paleography—the study and analysis of ancient writing. By analyzing and comparing the scrolls—letter to letter, brush stroke to brush stroke—to other dated documents, researchers were able to gauge dates quite accurately.

Photo: Courtesy of the Israel Antiquities Authority





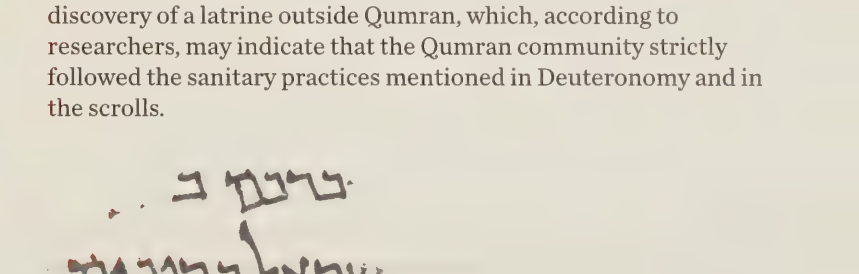
Soil Fingerprints

Determining who wrote the scrolls is a key question for scholars. Surprisingly, scientists can use soil analysis to point us toward an answer. Because no two soils are alike, dirt separated by even a few miles is distinguishable. The scrolls were found in clay jars and other pottery vessels, and the clay used to make the containers can guide us to where the jars were made, possibly pointing to where the scrolls were written.

To examine soil, scientists expose small samples to a process of nuclear activation, which measures its levels of radiation. Nuclear activation outlines the soil's chemical composition, resulting in a "fingerprint" to which researchers may match other soils.

Scientists tested the soil composition from the jars in which the scrolls were found against soil samples in and around Jerusalem and several other locations, including Qumran, an archaeological site near where the scrolls were found. Test results show that most of the jars were made locally in Qumran and four other nearby sites.

More recently, soil research has figured prominently in the discovery of a latrine outside Qumran, which, according to researchers, may indicate that the Qumran community strictly followed the sanitary practices mentioned in Deuteronomy and in the scrolls.



The Genius of Genes

The characters in *CSI: Miami* are not the only experts to use DNA analysis. DNA testing helps scientists study the scrolls in several ways. Most were written on parchment made from goat hide, and all biomaterial, living or dead, contains DNA—the blueprint for life. Each strand of DNA holds exactly the same information, but no two humans' (or plants' or animals') strands of DNA are exactly alike. With DNA testing and matching, scientists can now use DNA from the many fragments of parchment to help with the challenging task of piecing together individual scrolls. Recently, six of seven previously unidentified fragments were found to belong to the Temple Scroll.

But genetic testing can help gather evidence to solve other enigmas too—DNA from the scrolls may help point to where they were written. How? Scientists may be able to match a scroll's DNA to the bones of a goat buried at Qumran or, as some scholars would have it, in Jerusalem.

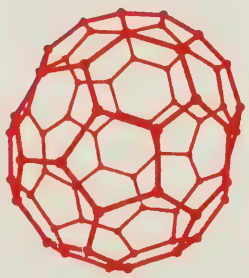
Scientists can also identify family lines through DNA. Innovations abound. Recently, researchers began using another kind of DNA, breaking down the genetic code in pollen from clothing found at Qumran. This reveals clues as to which plants flourished at that time. And humble head lice—which have been found attached to ancient combs in Qumran—may hold answers as well. If researchers can extract human DNA from the blood in one louse, that DNA could help identify present-day relatives of the Dead Sea Scrolls' scribes. Imagine the thrill of locating a scribe's direct descendants or family group.

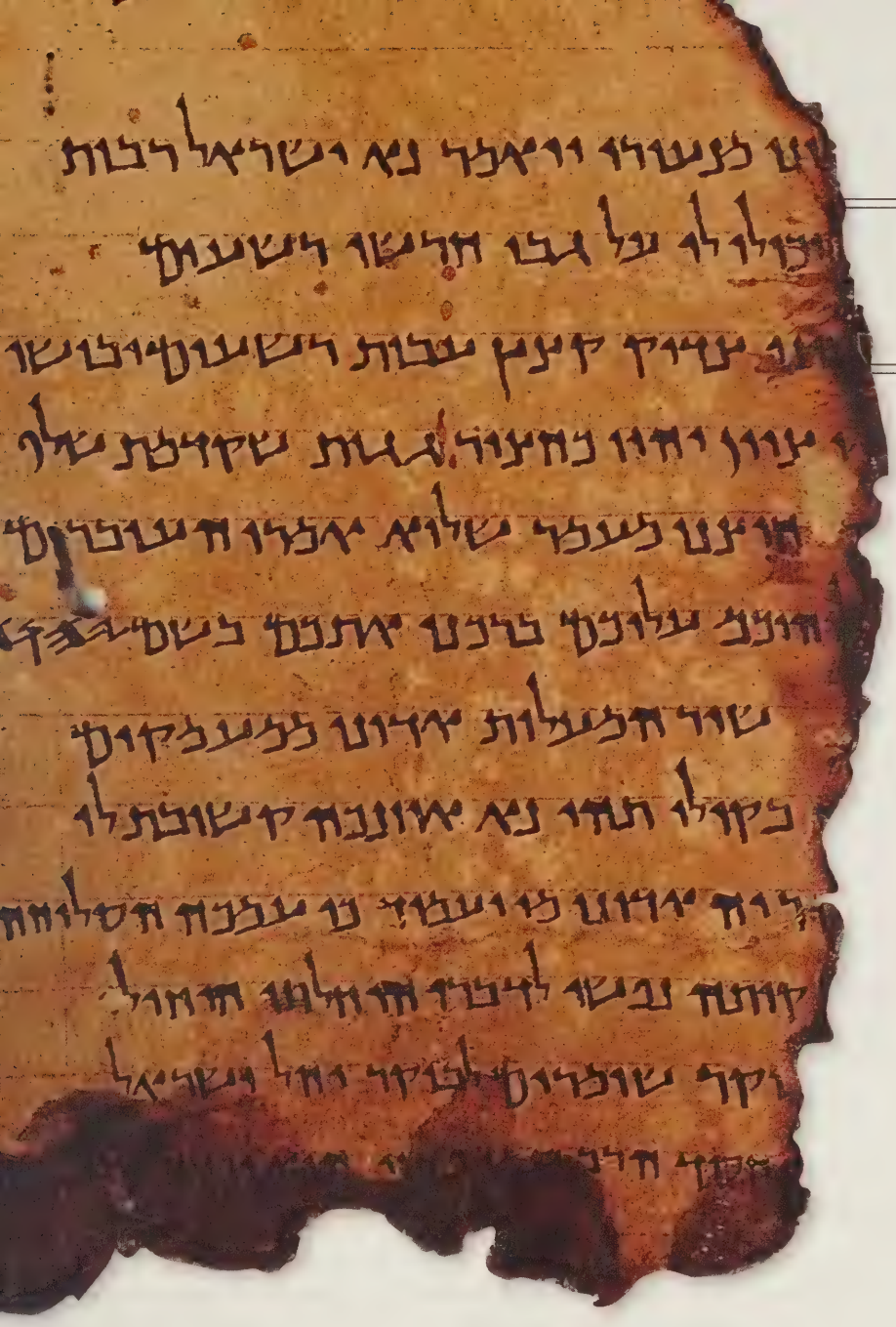
Seeing the Scrolls in a New Light

Written some 2,000 years ago, some of the scrolls have since deteriorated significantly. Layers of grime and disintegration from the environment and poor handling make some scrolls difficult to decipher. How then are the words of the most fragile scrolls to be read and analyzed?

Once again, modern technology steps in; infrared light and photography can retrieve lost words. Infrared light—which is beyond the visible spectrum—turns out to have the perfect wavelength to recapture missing text. The way it works is simple: the space around the ink absorbs infrared light, but the ink itself—and places where ink once existed—bounce light back. In this way, researchers can see and photograph words that have vanished over time.

While it's inevitable that the scrolls will continue to deteriorate, the Israel Antiquities Authority is making every effort to preserve them. Every scroll fragment will be digitally imaged, and every piece is protected from light and humidity damage. As research progresses on the Dead Sea Scrolls, scholars will continue to look to technology for innovative tools and methods to preserve and study these valuable documents. Ironically, it is modern technology that is opening a window onto the ancient world. o





PROMISES *from the* PROMISED LAND

The story behind the only Canadian-owned fragments of the Dead Sea Scrolls

"Canada's Great Biblical Bargain," read the headline of the *Toronto Star Weekly Magazine* on November 26th, 1960. It was a story that had begun in August of 1953, when R.B.Y. Scott, professor of Old Testament in the Faculty of Divinity at McGill University, attended a conference in Copenhagen. At the conference, Roland de Vaux, the first scholar to excavate the site of Khirbet Qumran and the head of an international team appointed to decipher the newly discovered Dead Sea Scrolls, made an urgent plea for funding.

The motherlode of all Dead Sea Scroll caves had been discovered by Bedouin herders a year earlier, but funds were tight. Money had run out before it was possible to purchase from the Bedouin all of the Cave 4 material discovered in 1952. De Vaux offered any institution willing to provide funding the right of export and possession of the scrolls upon their publication. Scott recognized the potential importance of the discovery and the prestige that might accompany housing such an important collection. He immediately approached McGill's administration, which responded enthusiastically.

Funds were secured to purchase the "McGill fragments," some 436 pieces from 160 different manuscripts found in Cave 4, with a donation from the John Henry Birks Foundation, based in Montreal. This funding permitted McGill University to be the first foreign institution to purchase fragments of the Dead Sea Scrolls. The price: a mere $15,000. A second purchase of $20,000 would soon follow. The expectation was that McGill's collection would be the finest outside of Jordan, making Montreal a centre for Dead Sea Scrolls study and research.

Through the 1950s, the scholars at McGill waited anxiously for the arrival of the Cave 4 scrolls. Work on deciphering and publishing the material was tediously slow. Every few months, the university was assured that delivery of the scrolls was imminent, but delay seemed to follow delay. Finally, in 1961, the Jordanian government announced that no Dead Sea Scrolls would travel. The funds provided by McGill were returned shortly afterward.

Today, all that remains of the episode are five small papyrus fragments housed in the University's Redpath Museum. These were acquired by Scott in 1955, on one of his visits to the Holy land. From a Bedouin, he bought a matchbox containing 17 scroll fragments and some coins. He dutifully handed his purchase to the Jordanian Department of Antiquities. The Jordanians gave him the coins and a small piece of papyrus, apparently blank, as a parting gift. In 1978 when Scott donated his books to McGill, this piece was found to consist of five fragments—some with Hebrew letters. These pieces, the only Dead Sea Scrolls held in Canada, will be on display as part of the ROM's exhibition *Dead Sea Scrolls: Words that Changed the World*.

For Further information on this story see:
Jacqueline S. Du Toit & Jason Kalman's "Great Scott! The Dead Sea Scrolls, McGill University, and the Canadian Media," Dead Sea Discoveries 12: 1, 2005.

The Gentle Giant

BY JUDITH EGER

After a lifetime of showing us why extinction matters, Bull the white rhino finds the perfect resting ground

It was Dr. Graham Crawshaw, senior veterinarian at the Toronto Zoo, on the phone. He was calling to tell me that the oldest white rhinoceros at the Toronto Zoo was about to be euthanized. Bull, as the rhino was known, was born in the wild in South Africa in 1963. He lived at the San Diego Wild Animal Park until 1974 when he was transferred to the Toronto Zoo. Now it was February 2008, and Bull had become extremely arthritic. The many joint problems he suffered were no doubt exacerbated by his weight, a mighty 4,500 pounds. Increasingly, he was unable to get to his feet.

As we discussed the news of Bull, we both felt that something positive could come from this—the rhino would make an outstanding addition to the ROM's galleries. The Museum was in the process of producing the new Schad Gallery of Biodiversity, and the gallery team agreed that a large rhino would make a striking exhibit. Thanks to quick funding approval and an excellent taxidermist of large animals, by the time you read this, Bull will be on view in the Schad Gallery.

Originally named Mtondo, Bull was a favourite with children visiting the zoo. He had a quiet and calm demeanour with them, and would come to the bars to allow himself to be touched. Bull was also gentle with his keeper of 17 years, Ron Gilmore, and would respond to Gilmore's voice. Several years ago, Bull found a rotten post in the palisade surrounding his activity area. When Gilmore discovered him, Bull had his head poking through the palisade looking intently in the direction of McDonald's as though he wanted to make a break for a Big Mac. He could have trampled his way out of his corral, but Gilmore simply called him, and Bull came back to his house. His temperament with other rhinos was a different story. He fought with males and he tormented some females, sparring with them and hitting them with his horns, though he did take a liking to others and sired three young over his life. The first, born in 1979, was a female, Shaboola, who still lives at the Toronto Zoo. The second, a male, Abeeku, born in 1985, was sent to Germany, and the third, Atu, born in 1990, also male, was sold to a game park in Hemmingford, Quebec. To prevent inbreeding, Shaboola and Bull were always kept in separate enclosures.

Bull was a gentle giant—and a powerhouse of muscle. Gilmore tells of the time Bull lifted the gate to his "backyard"—a combination of horizontal 10" × 10" wood beams held together at each end with steel I-beams. On that occasion the I-beams had not been bolted closed, and Bull managed to lift the gate several feet off the ground. He could have walked out of the corral, but again he responded to Gilmore's call to return to his enclosure. On another occasion, Bull had been in a fight with another rhino and had suffered cuts to his face. Gilmore tried to apply an antibiotic spray, but Bull, not liking the effects, ever so gently pinned Gilmore's arm to the bar, thus preventing further treatment.

Left: White rhino, *Ceratotherium simum* in Hluhluwe/Umfolozi Game Reserve in KwaZulu-Natal.

Bull's daily routine varied with the seasons. In the warmer weather, he would eat breakfast (five to 10 pounds of hay), have a shower, and then go out to the exhibit area, sometimes with the females and sometimes on his own. He enjoyed being lathered with "elephant" wash. At shower time, he'd come close to the bars of his enclosure, allowing Gilmore to soap him with a soap "gun" attached to a hose and brush him with a long-handled brush. When one side was done, Bull would turn and present his other side. Gilmore also used a conditioner to add moisture to Bull's skin, especially in winter.

In the cold weather, if he was going outside, Bull would not have a shower, and the time he spent outdoors was much shorter than in the warmer weather. Sometimes he decided for himself about going outside—he would stick his head out the door, and if he thought it was too cold, he'd turn around and head back into his enclosure. But if the temperature was below 0° C, he was kept inside.

At lunch, Bull would dine on a second serving of hay—another five to 10 pounds. And in the evening, he ate his last meal of the day indoors—half a bale of hay (30 pounds) plus 15 to 20 pounds of grain compressed into squares with vitamins and veggies. He thoroughly enjoyed the odd treat of several pears or apples and loved an occasional sweet feed of oats mixed with bran and molasses. In winter, he was given more food than in summer and he had plastic balls to play with to keep him occupied while spending more time indoors. As he got older, he tended to sleep more during the winter.

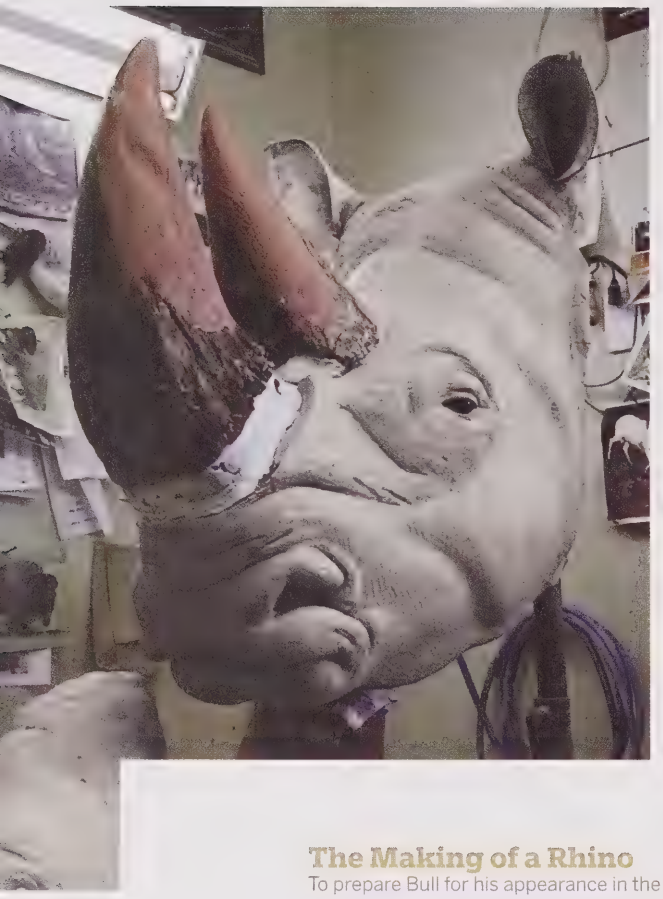
During his lifetime Bull was a healthy animal, never sick. His teeth and toenails were in good shape but occasionally one or both of his horns needed a trim. Made of compressed and matted hair, horns grow continuously throughout the rhino's lifetime. They are shaped and sharpened by constant rubbing on trees and rocks. The hair is made of keratin, a tough, horny tissue composed of proteins, and similar to the substance in human hair and nails. From a distance rhino horn looks smooth and polished, but viewed close-up, individual fibres near the horn base can be detected. Because of his age, Bull's two horns were very large, the larger one having at its base the diameter of a lunch plate.

Of the five species of rhinoceros in the world, all are endangered, primarily because they have been hunted for horn but also because of habitat destruction. Rhino horn has been used in a wide variety of products: for treating fevers and convulsions in traditional Chinese medicine, for ornaments like cups and figurines, and in the Gulf States, particularly Yemen, for handles of the most expensive daggers, which are still carved from rhino horn.

In 1975, the white rhino became one of the first species to be protected by the Convention for the International Trade in Endangered Species (CITES). Under CITES, the only rhinos that can be traded are live ones for captive breeding—and then only with the sanction of both the originating and the receiving country. But in spite of these restrictions, the quantity of rhino horn entering the illegal trade has increased significantly since 2000, indicating ongoing market demand and organized trade routes to the Middle and Far East.

Historically, the southern white rhinoceros ranged through southeastern Angola, central and southern Mozambique, Zimbabwe, Botswana, eastern Namibia, and northern and eastern South Africa. More passive than the black rhino, the white one was easily hunted. For a time it was considered extinct, but in 1895, a remnant population was discovered in Natal, South Africa. Today the distribution of the southern white rhino has increased, but the species exists mainly in protected areas and private game ranches in southern Africa, especially in the Hluhluwe/Umfolozi Game Reserve in Natal and Kruger National Park in South Africa. Small populations have also been reintroduced to Botswana, Namibia, Swaziland, and Zimbabwe, while a small native population survives in Mozambique.

From some 50 individuals in 1895, the southern white rhino population had increased to more than 17,000 in 2007, a conservation success story. But the International Union for the Conservation of Nature status for this species remains "near threatened," and the animal continues to be protected by CITES. The reason? The continued threats of poaching to satisfy the high illegal demand for horn. Successful protection depends on significant state effort and expenditure, and if these were to decline, especially in South Africa, rampant poaching could once again seriously threaten numbers.



Left: Head of the rhino mount at the clay modelling stage.

Rhinos are mammals belonging to the order *Perissodactyla*, meaning "odd-toed" ungulates, a group that includes horses, rhinos, and tapirs. The name refers to the fact that these animals have an odd number of toes—one, three, or five—and that the middle toe, which is larger than the others, is either the only functional toe, as in horses, or is the main weight-bearing toe. With feet designed for running, a rhino can dash at speeds up to 40 km per hour for short distances. Its legs are short and massive to hold up its ponderous form—adults can weigh anywhere from 3,000 to 6,000 pounds. The well-muscled body provides thrust and power, while the compact form with short neck and relatively rigid trunk allows tight control of balance when galloping.

Found in the open grassland, the white rhino has a lengthened head, which enables it to reach the ground to graze. Its flat-fronted lips and broad mouth are specially adapted to crop short or medium-length grass and its high-crowned teeth enable it to chew large amounts of the grasses, which are made highly abrasive by their silica content and particles of soil on their leaves. The large hump at the nape of the neck, consisting of muscle and ligament tissue, allows the animal to lift its heavy head. While rhinos have poor vision, their sense of smell and hearing are acute. Young are born after a gestation period of 16 to 18 months.

The white rhino's scientific name, *Ceratotherium simum simum*, tells us that this animal is a flat-nosed (*simum*), horned (*ceros*) beast (*therio*). First described in South Africa, the *C. simum simum* subspecies is native to that region. A northern subspecies, *C. simum cottoni*, once found in southwestern Sudan, Central African Republic, and northeastern Democratic Republic of Congo, now lives only in the latter country and may well be extinct in the wild. The common name, white rhinoceros (*rhino* meaning "nose" and *ceros* meaning "horned"), is in part a misnomer: these rhinos are not white. The name is a misunderstanding of the Afrikaans word *weit*, meaning "wide"—referring to its mouth.

But as for personal names, records at the Toronto Zoo do not indicate why Bull's was changed from Mtondo, so I decided to investigate. I contacted a South African friend who has Zulu connections. Her cousin Robert studies the language, and he informed me that when addressing Bull, one would call him Mthondo, and when speaking about him, he would be referred to as uMthondo. With this clarification to the spelling, I discovered from another of my friend's cousins, the Zulu-speaking Bongi (Sibongile Nene), that the name means "penis"—and that it is an onomatopoeic word. In the musical Zulu language, it sounds very heavy or weighty—the "thon" part takes at least twice as long to say as each of the other parts. Bongi added that Bull must have been well endowed. My guess is that his name was changed because in the 1960s and 1970s, either or both of the North American zoos felt the name was inappropriate—and that Bull would convey much the same meaning, if in a more tactful manner.

However he came by his name, Bull lives on as an iconic addition to the ROM's galleries. Iconic because of his size and stature, he's bound to become a favourite at the ROM—just as he was at the Toronto Zoo. But more importantly, Bull is a symbol of success in the realm of conservation biology. The world has saved this large species from extinction, and in the process has provided protection and habitat for many other species that co-exist with the white rhino. ○

The Making of a Rhino

To prepare Bull for his appearance in the Schad Gallery of Biodiversity, I found a taxidermist who had an excellent reputation with large mammals and previous experience preparing a rhino mount. Not only was he available, he lived in Cobourg, close enough to the Toronto Zoo that transportation was not a problem. I consulted the ROM's preparators to be sure that they could physically move the animal through the corridors and into the second-floor gallery (they could), and met with gallery designers to discuss where and how Bull would be displayed. The ROM Governors called a special meeting to hear the request for funding for the project and approved a grant from the Louise Hawley Stone Charitable Trust to make the taxidermy mount.

With funding in place, we hired Len Murphy of Pine Ridge Taxidermy Studio for the job. Enthusiastic is not a strong enough word to describe Murphy's passion for his work. Over the past year, he and his crew have worked hard to ready Bull for his installation at the ROM, starting with photo-documenting and preparing of the animal.

There were many steps to completing the taxidermy mount. First, the hide was removed and cured with salt, drained, and shaved with a double-handed knife, salted again, and hung to dry. Weighing 700 pounds, the hide was sent for tanning, soaking in a 50-gallon drum of formic acid. The hide was shaved again to a final thickness of 1/16th of an inch and returned to the pickling mix for two more weeks. The skin was oiled and tossed in a drum to make it pliable. After tanning, the finished weight of the skin was just 53 pounds. Meanwhile, the bones were de-fleshed, disarticulated, and they are still being cleaned for storage in the ROM's skeleton collection.

The form began with a prefabricated rhino-shaped Styrofoam core—yes, apparently such things exist! But the form wasn't very life-like and certainly not large enough. Murphy altered the head and leg positions with a saw and placed them in a more appropriate pose. The next steps included adding a layer of paper maché to build up the body to Bull's size, followed by a layer of modelling clay to shape the head, the body, and particularly the muscles in the neck, legs, shoulders, and hips. Originally, Murphy had planned to use a set of fiberglass horns copied from the mount he had prepared 15 years previously. But these horns were too small at the base, so on one of our many consultations, Murphy and I decided he would use Bull's own horns to mold a new fiberglass set.

After a lengthy modelling stage, hide paste was added to the clay form and the tanned skin, now very thin, soft, and flexible, was fitted to the Styrofoam mannequin, then sewed and stapled into place. Finally, the skin was painted to simulate Bull's original grey-brown colour.

The Righteous Fruit

Deeply rooted in human culture, these delicious red orbs figure large in myth and religion as well as health

BY JAMES CHATTO

Try an Enav Rimon cocktail at c5, a delicious blend of vodka, green grape, and pomegranate juice. $12.

A pomegranate tree grows in my neighbour's orchard on the Greek island of Corfu. She loves the splendour of its scarlet flowers and knows just when to pick the spherical hard-skinned fruits as autumn ripens them to a blush. They become a feature of her cooking for the rest of the season, the translucent crimson arils scattered like a handful of rubies over a salad or a pilaf. I didn't grow up with pomegranates and still think of them as rather exotic, but in fact the reverse is true: there are few plants more deeply integrated into human culture. It was the goddess Aphrodite herself who introduced them to Greece, back in the day, planting them on her native island of Cyprus. She had them from Ishtar who had them from Cybele, the Great Mother—the pomegranate symbolizes fertility and abundance in all their cults.

The Israelites also revered the pomegranate. The great bronze pillars of King Solomon's temple were decorated with them and they were embroidered onto the hem of the high priest's robe. Judaic tradition associates the fruit with righteousness because the number of arils it contains matches the 613 commandments of the Torah. So the recent appearance of a carved wood pomegranate bearing the inscription that it belonged to the priests of Solomon's temple was enormously significant—it was hailed as the sole relic of that fabulous building and accompanied travelling exhibitions of the Dead Sea Scrolls. It now seems that the inscription may be a forgery, though the artifact itself is far older, its patina suggesting that a Bronze Age artist carved it 3,400 years ago.

A long *curriculum vitae* for any fruit! And to it we must add the endorsement of the Koran (pomegranates grow in the Garden of Paradise), of Buddhism (it's one of the three blessed fruits), and of Christianity, which set it in the Virgin's hand as a symbol of the resurrection. Only in the last five years, however, has the pomegranate found true fame in North America. Californian growers were delighted to learn that its juice is a powerful antioxidant and a sturdy marketing campaign has since ensued, leading, inevitably, to sickly sweet pomegranate coolers and liqueurs (which must surely nullify any medical benefit).

My Greek neighbour tells me she doesn't need American doctors to teach her the virtues of pomegranate juice: it has always been part of the rustic pharmacopeia, especially useful for stomach upsets. More important to her is the intensity of its taste—simultaneously sweet, tannic, and sour. She prefers it to lemon juice or vinegar when dressing a salad, mixed with the limpid golden oil from her olive trees.

Pomegranates give us so much—ancient crowns were modelled on the shape of its calyx; the word grenade, as in hand grenade, is derived from its name—but I think my neighbour is right. It's unnecessary to burden a fruit with too much cultural lumber. Not when it tastes so good. o

JAMES CHATTO is a Toronto-based food writer, *Toronto Life*'s food columnist, and editor of *harry* magazine.

Putting Life in the Life Sciences

How a team of artists used everything from wax to fishing line to bring life to the Schad Gallery of Biodiversity

BY AMY LATHROP

This page, left to right: panther chameleon, prickly pear cactus, rhinoceros beetle, coral fungus, bolete mushroom.

When I was tapped on the shoulder and given the task of choosing reptiles and amphibians for the new Schad Gallery of Biodiversity, I was filled with a mixture of elation and apprehension. What an opportunity to have this kind of input! The gallery team would decide on concepts, and I would pick the amphibians and reptiles that best fit the story line. The difficulty of the job didn't hit home until I started trying to find iconic specimens worthy of display from among our collections.

Don't get me wrong. Our vaults contain amazing specimens, from tuataras, survivors of an ancient lineage, to very rare secretive, legless amphibians. But many specimens are preserved in alcohol, and for health and safety reasons cannot be placed in the galleries. More importantly, they don't look very life-like. They have often lost their colour and volume and are posed for scientific study rather than in natural postures. So, displaying our alcohol specimens was out. Purchasing models wasn't an option either. Life-like examples of animals are seldom available on the commercial market or from other museums. So, what was I to do?

Then I met the artists in the ROM's own art department, who would literally bring this gallery to life. What a relief. The art team prepared numerous realistic reptile and amphibian models, as well as plants, fungi, and invertebrates for the gallery. Georgia Guenther, a 20-plus-year ROM veteran who has worked on many a ROM gallery, recruited and coordinated the team: Panya Clark Espinal, M-J Kelley, and Melinda Barnadas. While each artist brings unique strengths to the project, the work of reproducing specimens very precisely demands highly developed powers of observation, attention to detail, and impressive painting skills. A depth of curiosity and thought as well as extensive knowledge of materials and three-dimensional fabrication processes are needed to solve problems of how to recreate, down to the finest detail, textures, nuances of shade, and form.

Many of the models the team produced represent worlds most of us will never see. Some of these creatures live deep in the ocean, others in the most remote places on earth. Some may be found outside their lairs for just a few hours a day or maybe for just one evening a year, while others are so secretive that even specialists may never encounter their cherished quarry during a lifetime of searching.

All four of these artists have an incredible knack for recreating life-like models from a specimen, be it a gooey, translucent jellyfish, a dehydrated prickly pear cactus, or a faded, long-ago-collected tree frog, all of which only vaguely resemble their living counterparts.

Above, left to right: Melinda Barnadas, M-J Kelley, Georgia Guenther, Panya Clark Espinal.

How did they do it? Here are a few examples.

Georgia once told me that to reproduce nature, "it is only reasonable to take objects from the natural world and transform them to suit our purposes." This is particularly apt when trying to show movement, for instance, a strawberry coral in the process of filter feeding—something the curatorial staff wanted in the gallery. The ROM had a specimen of strawberry coral, but its pale preserved condition did not accurately reflect the vibrant red of the live coral and the polyps no longer existed.

Fabricating the coral's fine filamentous polyps, or gills, from scratch seemed a daunting task, until Georgia noticed that feathery seeds from a large dandelion-like weed called *Tragopogon* sp., if trimmed, looked very much like the polyps in question.

Another project, the sea mouse, which looks just as the name suggests—a hairy invertebrate that scoots along the ocean floor—was simulated by taking a cast of the soft body tissue and adorning it with carefully selected strands of kid mohair. For the stiffer leg-like appendages, Melinda used bristles from a moose's mane.

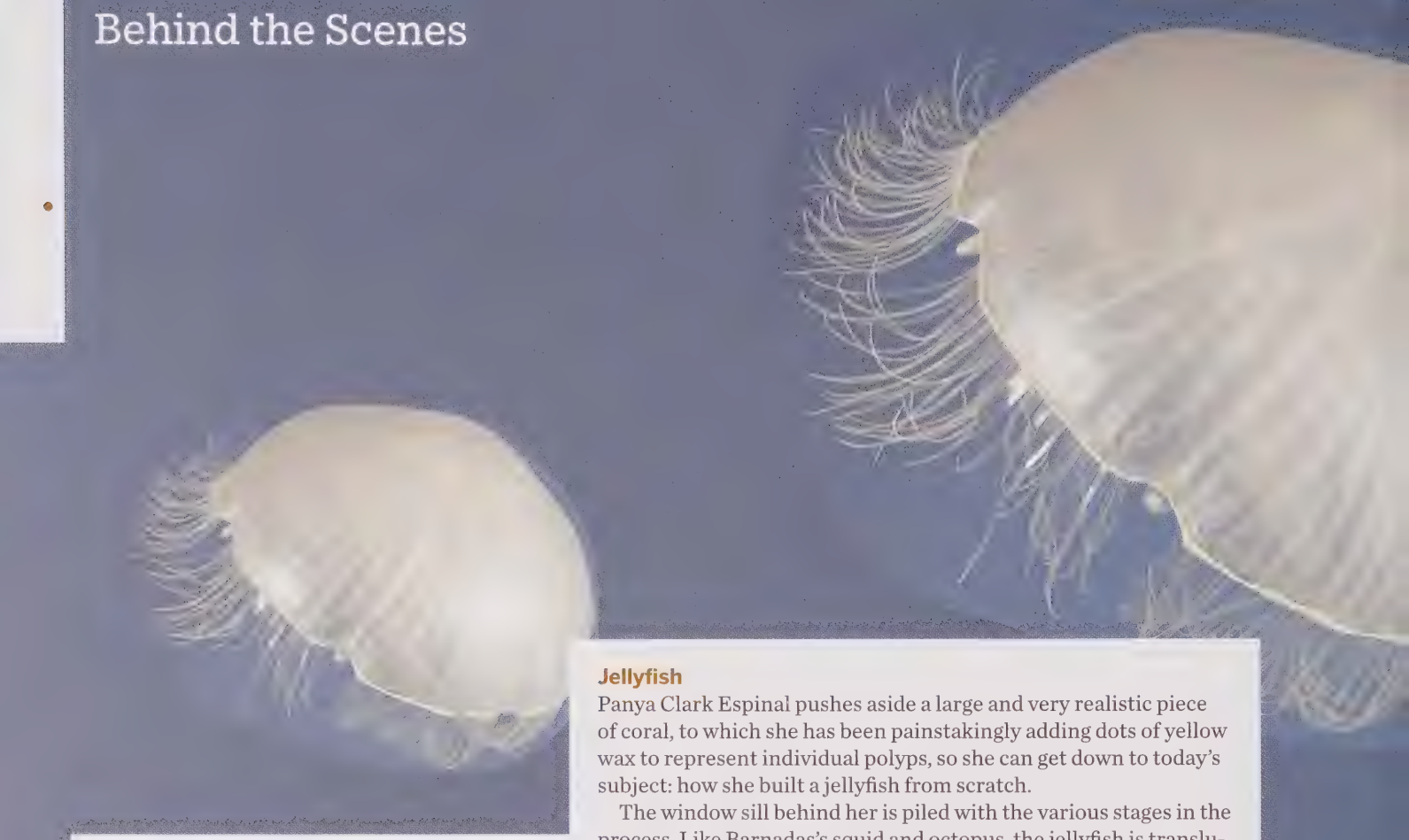
Botanical specimens can be some of the trickiest material to display. It isn't as simple as cutting a branch and hanging it in a case. Plants tend to fade under gallery lights, and needles and leaves fall off over time. Foresight is needed to prepare plant specimens that will withstand the test of time. In many instances, M-J worked with real preserved plant material, developing new techniques for reinforcing fragile parts and painting faded leaves or stems to resemble their original colour. In the case of the prickly pear cactus, Melinda meticulously attached individual real spines to ensure authenticity in her model.

Left to right: rhinocerus beetle, golden toad, strawberry coral, coral fungus, spoon arm octopus, purple sun star.

Sometimes the artists were asked to recreate specimens known only from historical accounts or for which there were limited photographs. Panya and I worked closely on modelling a toad that has vanished from the Costa Rican rainforests. It is a particularly special model because, for reasons still unknown, the golden toad suddenly disappeared and has not been encountered since 1987. It is considered extinct by the herpetological community. The ROM doesn't have any golden toads in its collection. So, it was only by reading the original description and poring over the limited available photographs that we are able to bring to life one creature that we have let slip away forever. Panya used a close relative to the golden toad as a model, casting the form as well as the texture of the skin in wax, and creating the tiny hands and feet by hand using wire and floral tape.

While the gallery team did opt to display a few animals as preserved specimens, the essential theme of this gallery—that *life is diverse*—has been made clear by the ingenious fabrications of this group of gifted artists.

AMY LATHROP is the technician in the Herpetology section of the ROM's Department of Natural History.



Panya Clark Espinal

- Graduated from the Ontario College of Art in 1988 with a diploma in Experimental Arts. Along with conceptual and specialized classes she took a wide range of technical courses.
- Work for the ROM over the years has included assembling leaves on the trees in the hardwood forest display, making reproductions for the ROM Reproductions Shop, model making for the Egypt and Nubia galleries, fabricating bats to refurbish the Bat Cave, and sculpting touchable objects for the *Peru Unearthed* exhibition.
- Has her own practice as an artist—her installation and conceptual sculptural projects are in a broad range of media, driven by ideas.
- Had solo shows at the National Gallery, the Art Gallery of Ontario, the embassy in Tokyo, and more. Her work is held in private and public collections, including the permanent collection of the National Gallery.
- Is represented by Christopher Cutts Gallery, Toronto. Visit panya.ca for further information.

Jellyfish

Panya Clark Espinal pushes aside a large and very realistic piece of coral, to which she has been painstakingly adding dots of yellow wax to represent individual polyps, so she can get down to today's subject: how she built a jellyfish from scratch.

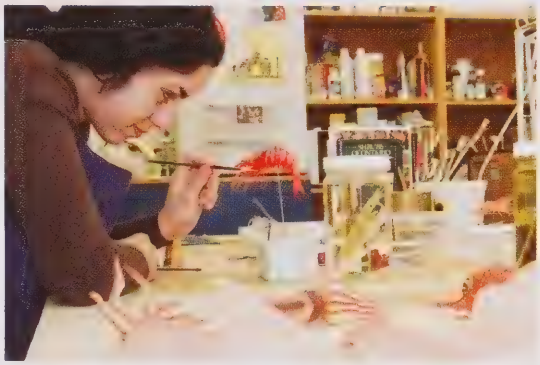
The window sill behind her is piled with the various stages in the process. Like Barnadas's squid and octopus, the jellyfish is translucent. But Clark Espinal, concerned about the environment, wanted to avoid casting a solid object in resin if she could. "I wondered how I could represent the idea in a different way," she says. She came up with the notion that vacuum-formed plastic sheets might work to convey volume as well as the desired translucency. "I wasn't 100 percent sure this process would work," she admits. "It was very experimental." But with a background and art practice in experimental art, testing new media is nothing new for her.

She started by modelling the shape in an oil-based clay called Kleen Klay, simulating the texture of the jellyfish's underside and the arm-like tentacles and modelling the four circles that represent the jellyfish's innards. Since plastic sheets must be heated for vacuum-forming, she couldn't use the clay models, which would have melted, so she made plaster replicas of her models. At first, she tried using frosted plastic for the vacuum forming. It turned out to be too opaque; so she switched to clear plastic and "frosted" it herself by spraying on a matte medium.

Clark Espinal routinely works by looking at photos, but too often, she points out, photos taken from the internet have been manipulated. "We've learned to scrupulously question photo references," she says. "It has been fabulous working closely with the curators," she adds. "Their depth of knowledge in their areas of specialization is remarkable. Amy Lathrop, the herpetologist I worked with, was able to glance at my models and know that a gland should be a little further back or a bump should stick out a bit more."

To recreate the jellyfish's tendrils that sway in the current, she cut very thin strips of plastic and curled them as you would gift ribbon. But creating iridescence around the jellyfish's perimeter was another experiment. The idea came from the reflective materials used to paint crosswalks—paint mixed with tiny glass beads that reflect light. She applied the same kind of mixture around the edge of the jellyfish and to its tentacles.

Once she had assembled the three layers, the jellyfish was complete. "It was a lot of fun to make," she says. And if all goes according to plan, it will glow softly in the gallery as it does under a desk light in the studio.



Melinda Barnadas

- Split Bachelor of Fine Arts in figurative painting and experimental art & technology from The School of the Art Institute of Chicago. Coursework in traditional craft at Universidad de Las Americas in Puebla, Mexico. Traditional blacksmithing training from the John C. Campbell Folk School, Brasstown, NC
- Has 10 years experience as a scientific illustrator and worked in residence at the Field Museum and the American Museum of Natural History. She also produced models for the ROM's Reproductions Shop
- Diverse technical background from Renaissance to contemporary figurative painting techniques, commerical photo realistic mural work, bronze casting, and electronics/kinetics/robotics for art applications
- Has produced works and events in a broad range of media in galleries and public spaces throughout North America. Her most recent project was in collaboration with Tae Hwang at the Bata Shoe Museum for Nuit Blanche 2008
- Founder of the international art collective Magpie, which produces synergistic public art works

The Squid and the Octopus

What do you get when you combine fishing line, glass animal eyes, and pharmaceutical silicone? This could be a joke, but for Melinda Barnadas—who is creating models of the spoon-arm octopus, the lesser shining bobtail and the northern short fin squid for the Schad Gallery—these materials provide solutions to artistic challenges.

These species tend to lose their colour almost immediately when stored in alcohol. "As the skin starts to yellow," Barnadas explains, "you no longer get a sense of their translucence or the brilliant colours of their natural pigmentation." She needed a way to reproduce the look without using the actual deflated, contorted, and shrivelled alcohol specimens. The undeniably cute, jiggly—and beautifully transparent—creatures lined up on her work surface make it clear that she has succeeded.

Pharmaceutical silicone is a medium used by many contemporary artists, and Barnadas found that it provided the required translucency for her marine invertebrates. She took a mould directly from each of the misshapen real specimens to get an approximation of the correct size and proportions. Dental algenate—the stuff dentists use to make a mould of your mouth—makes a perfect temporary mould. It's gentle and moulds easily around the fragile specimens.

After taking wax casts from the moulds, Barnadas pored over reference photographs and had the curator explain in detail what needed to be sculpted to make each model perfectly life-like. Once she had the form perfected in wax she made a second mould of silicone and plaster for casting the final products. For the northern short-fin squid, its body length was fabricated from a flat sheet of silicone. Barnadas used clear mono filament—fishing line—and invisible stitches to sew the pieces into their tubular shape. The squid are given a final flourish of paint created from two-part silicone and artist dry pigments, applying the colour-matched skin patterns by hand.

But most arresting are the eyes. The large iridescent peepers were created by taking commercial glass animal eyes, scraping away the coloured iris, and substituting crushed oyster shell. And for the octopus? Its glass eyes—purchased from a taxidermy supplier—are hand-painted with an intricate gold-and-orange-speckled pattern.

These flexible models have wire filament cast within their extremities so the curator can pose them swimming effortlessly through their native western Atlantic seas.

Top left: spoon arm octopus. **Bottom left:** lesser shining bobtail squid. **Right:** northern short fin squid.

M-J Kelley

- Is a classically trained figurative painter and artist with more than 20 years experience
- Holds a BA in art history from Carleton University in Ottawa and has completed MFA coursework from the Academy of Art in San Francisco
- Has also received advanced training in comic arts and sequential storytelling from the Kansas City Art Institute in Kansas City
- Has participated in various juried shows as well as a solo figurative exhibition
- Currently, she is pulling from her varied experience to explore more surreal and animated forms, including a graphic novel

Giant Chinese Salamander

The Starbucks take-out cups covering M-J Kelley's desk aren't simply evidence of coffee consumption. Kelley, who is building a 6-foot-long Chinese giant salamander for the Schad Gallery of Biodiversity, uses the cups to "frappé" paint colours. Who knew that a frothing tool with a touch of airbrush medium is perfect for mixing paint rapidly and well?

But the major reference tool for her project is tucked under her desk in a steel box—a real specimen of a slimy baby giant Chinese salamander. Smelling of alcohol, the specimen is on loan from the Smithsonian Institution. The catch: Kelley's model must be double the size of the 3-foot specimen. To get the proportions just right, she spent hours measuring and re-measuring its every possible angle. When she was done, she knew exactly how thick and how wide the model salamander should be—and every other specification.

Her first step was to create two sketches of the creature on kraft paper—a top view and a side view. Kelley's figurative drawing skills came in handy for drawing the salamander in the round. The slight curve she gave the body not only mimics how the salamander moves, but allows the model to fit inside its case in the gallery. "We needed to make him look like he was walking or swimming," says Kelley. "I watched a lot of video of the salamander to capture the movement of the head and the legs."

After taping her kraft-paper sketches to plywood, Kelley jigsawed both views from the wood and screwed them together, adding a wire-mesh tail. Glueing down blocks of pink Styrofoam on top, Kelley shaved and carved them into the shape of the body, which she then wrapped in paper maché. "Paper clay," made with actual paper content, was just right for creating texture—the folds in the salamander's skin, the many warts, the eyes, and the ridge along his back.

Lastly, the salamander received several coats of acrylic paint (hold the frappé, in this case). And because he's "one of the slimiest creatures there is," he was lavished with numerous coats of gloss. Though the salamander took Kelley a month to complete, "he was a charming creature to work with."

"To reproduce nature, it is only reasonable to take objects from the natural world and transform them to suit our purposes"

Georgia Guenther

- Graduate of the Ontario College of Art, where she studied every material and technical process possible. She also studied sculpture, anatomy, and 3-D design
- Fell in love with the ROM as a teenager on a school visit and decided she would work there
- Since joining the ROM in 1979, she has made artwork in many media for countless exhibits on topics of archaeology, art, life and earth sciences, as well as for curatorial research, public programming, and ROM retail
- One of her first projects was creating a travelling exhibit called *Amphibians of Ontario*. Thirty years later, two frog models left over from that show were pressed into use for the Schad Gallery

Top: bolete mushroom. **Middle:** trumpet mushroom. **Bottom, flanking the bolete mushroom:** veiled lady mushroom.

Tropical Mushrooms

While busy coordinating the art team's work, senior artist Georgia Guenther fabricated some of the gallery's more concise components, including the mycology pieces—the fungi. It's the first time life-like models of mushrooms have been presented in the ROM's galleries. With no actual specimens to work from, Guenther modelled everything by hand from wax, based on photographs and descriptions from the curators.

"I asked lots of questions," she says. "And what I learned is that everything is significant when you look at a mushroom. Every detail you can see means something about the nature of the mushroom and it needs to be represented accurately."

The most interesting aspect of the work for Guenther was creating the diversity of textures. The trumpet fungus from Guyana, for instance, has a greasy quality and a colour difference between the fertile and non-fertile surfaces. Guenther first carefully dyed wax to just the right translucent orange hue. Then after modelling the fungus's cone shapes, she applied another layer of opaque white wax to the orange exterior to represent the fertile surfaces. To impart the greasy quality, she glazed the interiors with shiny brown oil paint. Part of what makes the work so exciting is that this mushroom is a newly described species.

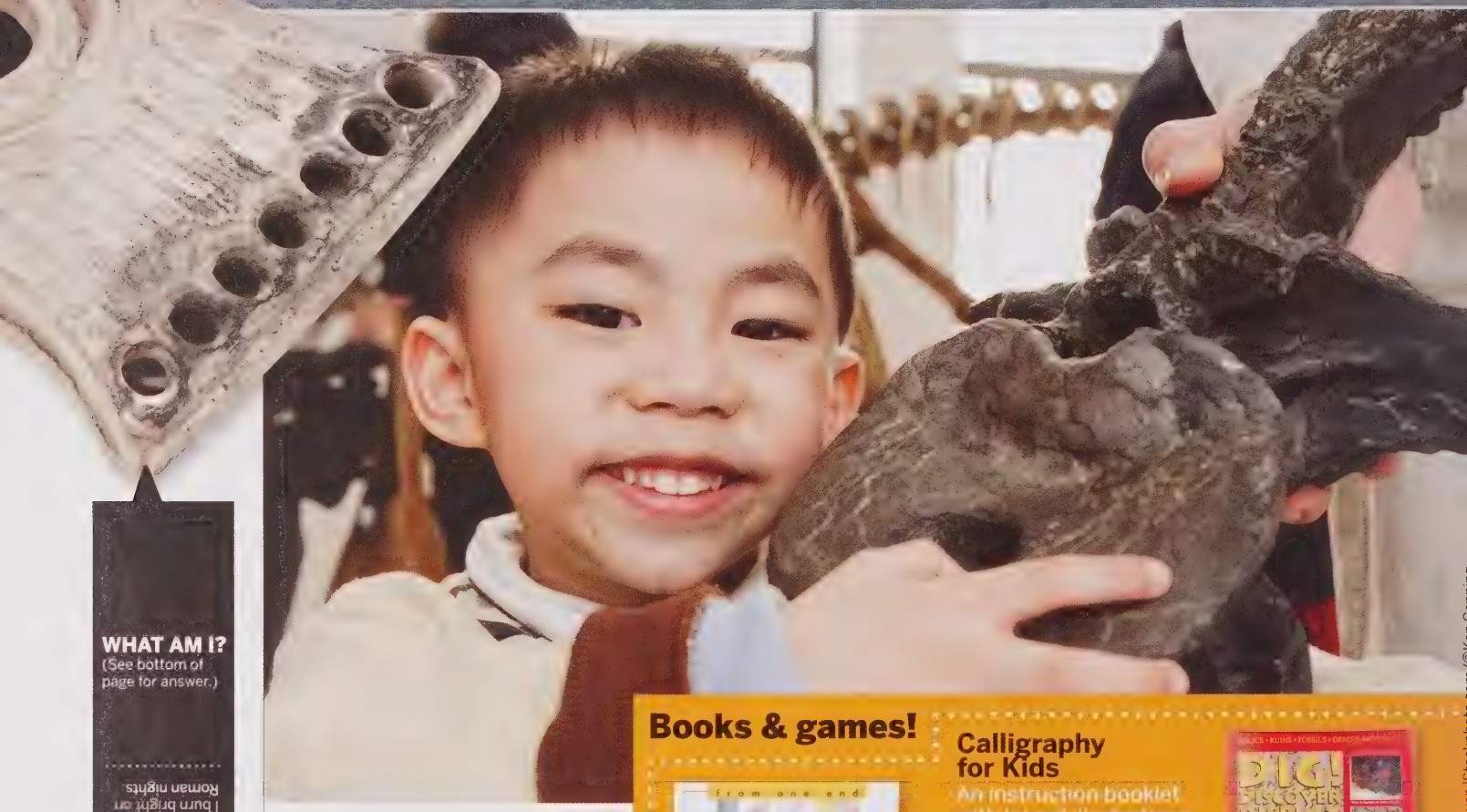
For the coral fungus, so-called for obvious reasons, Guenther hand-rolled fine ropes of wax until they were delicate enough to represent the small divided tips. She analyzed pictures to get the relative proportions of different branches just so, then added brown oil paint to the orange surface to make it look more natural and weathered. Creating the dusty texture was easy: wax naturally has a slightly adherent property. She simply dusted the outside with crushed chalk pastel.

For the bolete mushroom, which Guenther calls "kind of a shaggy dog," the texture was modelled and then the form was painted pink with acrylic paint. But perhaps the most spectacular of the fungi is the veiled lady with its spongy stem growing from an egg-like puffball, and wearing a gauzy veil around its cap. Creating the net-like veil was Guenther's biggest challenge. Real netting proved to be too regular in form. Guenther experimented with knitted thread but rejected this net's openings as "too round." Ultimately, she took to paper and an exacto knife and simply drew the multi-faceted veil, cutting the openings by hand, and strengthening the paper with acrylic medium before carefully applying it to the mushroom's cap.

While Guenther has worked at the ROM for 30 years, she continues to revel in the diversity of the projects. None of the artists has the luxury of working on just one project at a time, and Guenther points to some tiny orchid flowers she is modelling. "You need a lot of patience . . . and good eyewear," she says pulling on a *Back-to-the-Future*-style magnifying headset. As for managing the team, "It's wonderful working with such talented and like-minded people," she says. Even if they do laugh at her eyewear. o

Afloat in the Salty Sea

The Dead Sea, or "Sea of Salt," is one of the saltiest bodies of water on Earth—8.6 times saltier than the ocean. As one of the world's first health resorts, it was visited by King Herod the Great, ruler of Galilee during the time of Jesus of Nazareth.



WHAT AM I?
(See bottom of page for answer.)

HINT!
I burn bright on Roman nights

Dead Sea Scrolls Kids Weekends

On Saturdays and Sundays from June 27 to September 7, 2009, kids can decode ancient text, dig for buried artifacts, and explore life in the time of the Dead Sea Scrolls. A series of specially themed weekends will feature hands-on activities inspired by the scrolls. For details see **rom.on.ca**.

Above: A young March Break 2009 visitor gets his hands on a Late Jurassic *Allosaurus* vertebrae.

Books & games!

Boys and Girls of the World
Beautiful watercolour illustrations and text introduce readers to fictional kids from different countries. Age 7 and under. By Nuria Roca. Illustrated by Rosa Maria Curto.
$10.99

Calligraphy for Kids
An instruction booklet with lots of illustrations plus a calligraphy pen and two nibs. By Tony Potter. Illustrated by Patrick Knowles, Tony Potter, Estelle Corke, and Peter Rutherford. For children 8 and up.
$15.50

Dig! Discover Display
Experience the thrill of discovering ancient artifacts, coins, and lost treasures with the DIG! series of excavation kits. Learn how to unearth, collect, and restore objects including fossils, gems, and minerals! $34.99

All available at the ROM Museum Store!

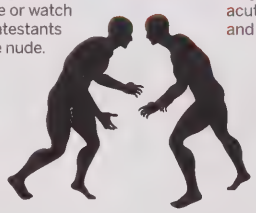
Fun Facts:

Mummies on the Menu
During the Middle Ages and in Victorian times, Europeans ate ground mummy dust as a beauty supplement.

Flying Ace
The albatross can fly for up to a year without landing.

No Ladies Please
The Olympics started with the ancient Greeks, but back then only men could participate or watch because the contestants competed in the nude.

Barely a Whiff
Most birds lack a sense of smell. To find food, they depend instead on acute senses of hearing and sight.



ANSWER: Roman oil lamp made from clay, dating from the 1st century BCE to the 1st century CE.

Faithful & Fashionable

Heavenly accessories for the home and body

BY DENISE DIAS

With Madonna and Demi Moore sporting red string Kabbalah bracelets, young pop stars wearing *What Would Jesus Do?* T-shirts, and top fashion designers like Galliano and Cavalli using Hindu symbols in their runway collections, the worlds of fashion and religion are converging to create some of the latest trends.

From glossy, bright Buddha statues to Tibetan prayer-bead necklaces, it seems the options are endless when it comes to dressing up your home or wardrobe with notions of spirituality, karma, or wellbeing. Here are some inspiring examples from our own ROM boutique.

1.

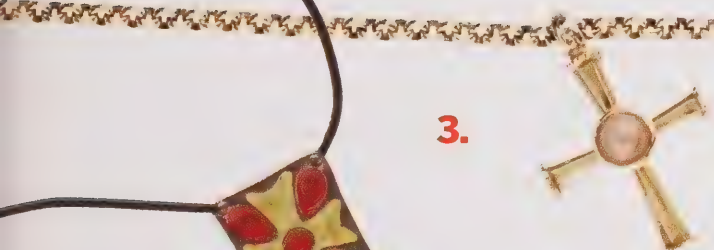
1. ARMADA MEDAL NECKLACE
This large sterling silver necklace with cultured pearls shows Queen Elizabeth I on the front and a bay tree immune to lightning on the reverse. The lightning likely represents the wrath of heaven; a Latin inscription translates as "Not even dangers touch it." **$425.**
Why we love it! This trendy-looking, chunky accessory made from mixed materials is fit for royalty.

2.

2. VAJRA PIN/PENDANT
The vajra is one of the most important ritual objects in Tibetan Tantric Buddhism. Its form—two identical ends bound by an unbreakable core—reflects the diamond-hard nature of the Buddha's mind. **$39.**
Why we love it! This little beauty does double duty—it can be worn as a pin or a pendant.

3. BYZANTINE CROSSES
Enamelled sterling silver or gold, these Eastern Mediterranean Byzantine crosses feature images and designs that date as far back as the 5th century CE. **$69.99 or $89.99.**
Why we love it! These crosses are equal parts art and religion, reproduced and adapted from objects in the ROM's own collections.

Store hours: 10 am to 6:30 pm, except Friday 10 am to 10 pm.
Kids Store: Monday to Thursday Noon to 4 pm, Saturday and Sunday Noon to 5:30 pm.



3.

4. BUDDHA STATUE
Make a statement in your home or contemplate the principles of karma at the office with this lazy Buddha for your desk. **$34.99.**
Why we love it! Iconic Buddha statues are super trendy and hold deep spiritual meaning

4.

FOR OUR

members

The latest offers and information

ROM GOVERNORS MESSAGE

The Thrill of Discovery and Wonder

This summer learning continues at the ROM, a place that allows us to engage with the world

It's hard to believe that summer has nearly begun. With the school year almost finished and the lazy days of summer stretching ahead, I know from personal experience how excited kids get about their summer plans. Here at the ROM, we are also looking forward to a fun-filled summer as our Summer Club leads an exciting new season of wonder and exploration. Summer break reminds me that education is a life-long process and that learning often takes place beyond the walls of a classroom. The thrill of discovery and wonder can happen anywhere: on a beach, at the cottage, in your grandmother's garden. And, of course, at the Museum.

Our new Schad Gallery of Biodiversity, which opened to the public on May 16, 2009, is a testament to the love of learning and to the ROM's commitment to helping visitors engage with the world: to discover, and to learn about our ever-changing planet. In this Members' section of the magazine, a special page highlights the Schad Gallery dedication event and pays tribute to the transformational gift of Robert and Elizabeth Schad that brought this amazing space to life. I hope that if you have not had a chance to visit it, you'll make a point of coming soon.

Learning will also be a theme with our next blockbuster exhibition, *Dead Sea Scrolls: Words that Changed the World*, which opens to the public June 27, 2009. This awe-inspiring exhibition will explore the multi-faith connections to these ancient texts and spark dialogue and discussion in our community. A series of academic lectures generously supported by the family of Anne Tanenbaum will also provide participants with a unique educational opportunity.

Here in the ROM Governors office, we are always striving to learn and grow, especially in the final days of the Renaissance ROM campaign. The campaign has now raised more than $280 million, making it the most successful cultural campaign in Canadian history. I would like to personally thank all our donors, members, and patrons for their passion, commitment, and love of learning.

P.S. I invite all of you to learn while you laugh at the ROM's annual Fact? Or Fiction? Fundraiser on October 22, 2009. For tickets please call 416.586. 8064.

DR. MARIE BOUNTROGIANNI
PRESIDENT AND EXECUTIVE DIRECTOR
OF THE ROM GOVERNORS

EXCLUSIVE *DEAD SEA SCROLLS* ORIENTATION FOR MEMBERS
ENJOY A PRESENTATION ON THE SCROLLS' DISCOVERY, ORIGINS, AND MORE.

MEMBERS' ORIENTATION

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MEMBER INFORMATION

MUSEUM MEMBERSHIP
Individual: 1 year $90; 2 years $160
Family/Dual: 1 year $139; 2 years $250
Non-Resident: 1 year $95; 2 years $170
Student: $50
Explorers: $15 (in addition to ROM Membership)
Curators' Circle: $175
Museum Circle: $300
Director's Circle: $600
Young Patrons' Circle: Single $600; Dual $1,000
Royal Patrons' Circle: $1,500+

TELEPHONE NUMBERS
Membership Services: 416.586.5700
Switchboard: 416.586.8000
Bell Relay Service: 711
School Groups: 416.586.5801
Museum Volunteers: 416.586.5513
ROM Museum Store: 416.586.5766
c5 Restaurant/Lounge Members Reservation Line: 416.586.8095
Donations: 416.586.5660

Attention Members: Your privacy is important to us. The Royal Ontario Museum (ROM) and the ROM Governors (the ROM's charitable foundation) share a special relationship and you may receive additional information from each. If you do not wish to receive it, contact membership@rom.on.ca or or call 416.586.5700.

Occasionally, we make our list of supporters available to other carefully screened curatorial organizations and selected groups that may be of interest to you. Please understand that by allowing us to exchange your name, you are helping us support the ROM's education and research mandates. If you prefer not to have your name exchanged, please contact us at membership@rom.on.ca or at 416.586.5700.

The ROM Membership Department operates a telemarketing office. Should you prefer not to be contacted by telephone, please contact us at the below listed e-mail address or phone number and we will have your number removed from our list.

Membership/ Bookings:
416.586.5700
membership@rom.on.ca
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ROM BOARDS

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The ROM's mission is to inspire wonder and build understanding of human cultures and the natural world.

Fredrik S. and Catherine Eaton Donate to ROM's Canadiana Collection

GIFTS HELP ILLUMINATE KEY FIGURE IN CANADIAN HISTORY

At a gathering on March 31, 2009, ROM Director and CEO William Thorsell acknowledged Mr. Fredrik S. and Catherine Eaton's recent donations to the Museum's Canadian collections. A donated painting and statuette, both representing General James Wolfe, were installed to complement the ROM's epic painting *The Death of General Wolfe* (1776), by Benjamin West.

The statuette was created in 1911 by Vernon March (1891–1930). The donated painting was likely based on William Woollett's highly popular 1776 engraving of the Benjamin West original. The painting depicts the British general's final moments during the 1759 Battle of Quebec—which, Mr. Eaton pointed out in his remarks, "represents *the* important event in the history of Canada and the then-British Empire. We should celebrate, as I do," he added, "this seminal event in Canadian history."

In recognition of these donations, as well as Mr. Eaton's gift to Renaissance ROM, the Museum has named *The Death of General Wolfe Exhibit* in his honour. His gifts have also inspired the launch of the Canadian Initiative, a multi-goal project that will raise funds and recognition for the ROM's Canadian collections and programs. Fredrik S. Eaton is the great-grandson of Eaton's department store founder Timothy Eaton and this is the latest in the Eaton family's decades-long generosity and commitment to the ROM.

Above: Dr. Marie Bountrogianni, president and executive director of the ROM Governors, with Fredrik S. Eaton.

Culture Shock: Celebrity Watch

Don't miss out on Culture Shock—an unforgettable fundraiser, produced in association with Filminute.com, the one-minute online film festival. Guests will enjoy a sneak peek at the *Vanity Fair Portraits* exhibition. All proceeds support the Institute for Contemporary Culture Endowment Fund. For tickets, call 416.586.8064 or contact **kirstenk@rom.on.ca**. **September 23, 2009, tickets: $500 each**

c5 in Toronto's Top Ten

For the second year running, *Toronto Life* magazine has selected the ROM's c5 Restaurant/Lounge as one of the top ten in the city. ROM Members receive a 10 percent discount. For reservations at c5, call 416.586.8095.

How to Get Tickets for Dead Sea Scrolls

ROM Members are entitled to a complimentary allotment of tickets to *Dead Sea Scrolls* based on membership level. Have questions? We have answers.

How many free tickets am I permitted?

- **Royal Patrons' Circle, Young Patrons' Circle, Director's Circle, Museum Circle, and Curators' Circle Members:** 2 adult, 4 child (4 to 17 years and under), and 2 guest tickets.
- **Family/Dual and Non-Resident Members:** 2 adult and 4 child tickets.
- **Students and Individual Members:** 1 adult ticket.
- **Life Members:** 1 adult and 2 guest tickets.

How do I obtain my tickets?
Visit the Membership Desk in person to book and pick up tickets, or reserve tickets online. Tickets are dated and timed, so know your preferred date and time when booking.

What is the online reservation process?
Members can reserve tickets at **rom.on.ca/scrolls/tickets_book.php** by clicking the "proceed with reservation" button. You'll be asked to enter your membership ID and postal code. Select the date and time you wish to visit *Dead Sea Scrolls* and print the tickets at home. Tickets may not be reserved or purchased by phone. Free tickets will not be subject to a service fee.

May I purchase additional tickets after I have reserved all of my complimentary tickets?
Members may purchase additional tickets for their personal use for $6 each with their valid membership card. Additional tickets for children (4 to 14 years) are free but are limited to four tickets per transaction and only with an adult Member purchase. Members with guest privileges (Circle and Life Members only), may purchase additional tickets for any guests that visit with the Member. These additional tickets are subject to a $1 service charge per ticket when purchased online. Tickets may be purchased at the Membership Desk without a service fee. Tickets may not be reserved or purchased by phone. All Members must present a valid membership card and photo ID.

RENAISSANCE ROM CAMPAIGN The campaign has now raised more than $280 million, making it the most successful cultural campaign in Canadian history.

NEWS & PROGRAMS continued

Can I exchange or use my ticket on another date?
Tickets can be exchanged for a $1 service charge per ticket. Changes can be made only onsite at the Membership Desk and will be based on ticket availability.

If I am unable to use my complimentary ticket that I have reserved, may I give my ticket to a friend or family member?
Dead Sea Scrolls tickets only get you into the exhibition and are non-transferable. Family or friends who are not Members or are unaccompanied by a Member with guest privileges (Circle and Life Members only) will pay regular admission rates. However, you may exchange your *Dead Sea Scrolls* tickets for a $1 service charge per ticket. Tickets can be exchanged only onsite at the ROM Membership Desk and will be based on availability.

Can I bring a group to the ROM? Do Members get special group rates?
Package options are available for groups of 10 or more at a special group rate. Groups are also offered add-ons, such as guided tours and special menus. For details, go to **rom.on.ca/scrolls/groups.php**.

Mona Campbell: A Longtime Friend of the Arts

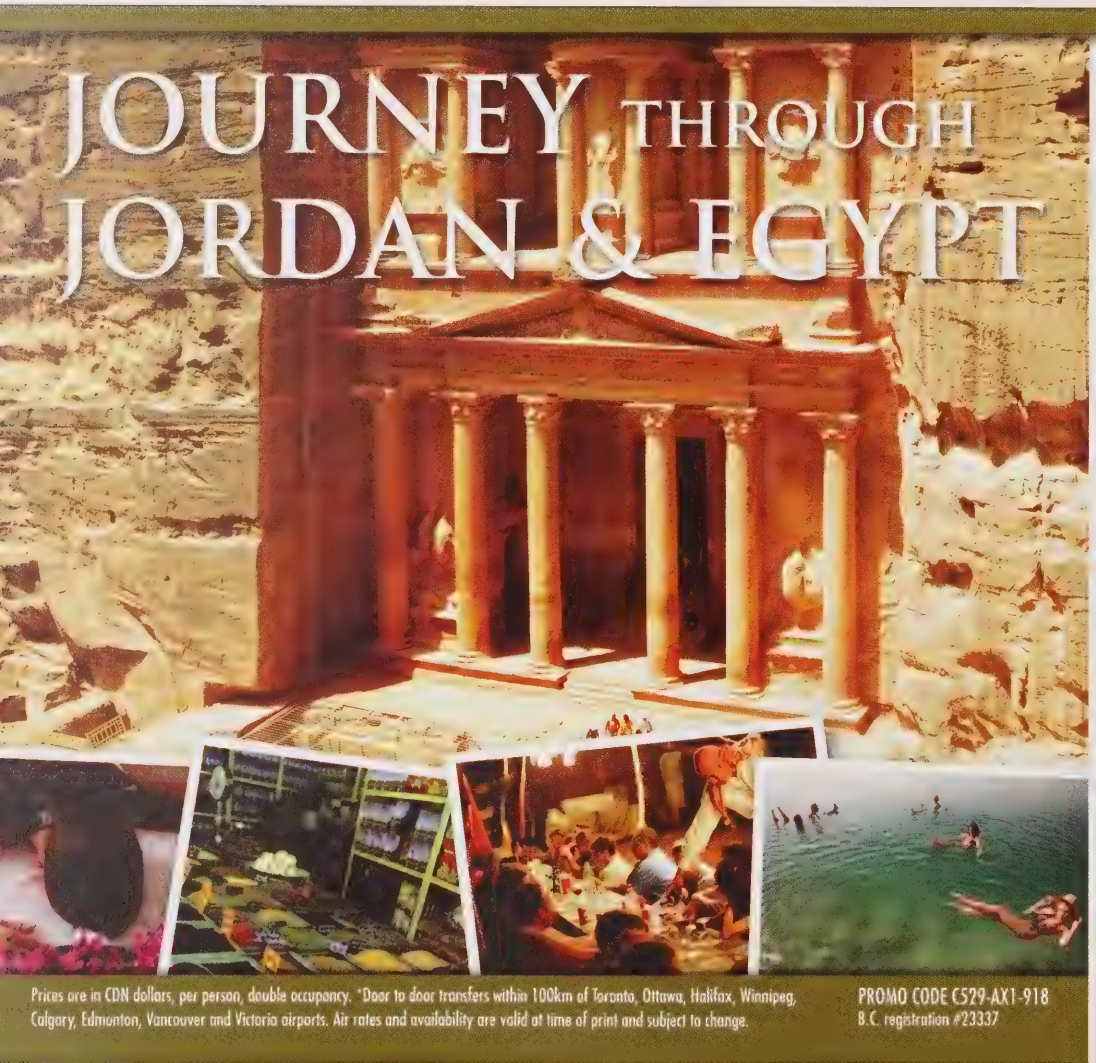
From the 1970s until her death in 2008, Mrs. Kenneth L. Campbell was one of the most important supporters of the ROM, particularly its European section. Known to her many friends as Mona, Mrs. Campbell was the daughter of a Toronto industrialist. In 1955, she took the reins of her father's companies, serving as president, chairman, and CEO. She was the first woman elected to the board of the TD Bank, and contributed as a director to several other companies. She was also a major supporter of the National Ballet School.

At the ROM, Mrs. Campbell served as co-chair for the Museum's expansion program, which in 1979 began raising funds to build the Terrace Galleries and Curatorial Centre. She first supported the European Department in 1985 by providing then-unavailable funds for travel to U.S. exhibitions, enabling curators to learn about the latest display approaches for creating our new galleries. Subsequently, she funded the acquisition of a significant collection of design graphics, as well as Bronze-Age Aegean antiquities. In 1997, Mrs. Campbell endowed a curatorship in European Decorative Arts at the ROM.

Last year, the ROM was delighted to receive an extraordinary bequest of $5 million from Mrs. Campbell's estate. Thanks to this generous bequest the ROM will enhance her endowed curatorship and expand research and programming in decorative arts and textiles. While it is her financial support that is most recognized publicly, it was her warm personal friendships with individual curators that have been even more sustaining for the institution and are reflected in her generous bequest.

ROBERT LITTLE and **PETER KAELLGREN** are curators in the ROM's European section

Photo: Cavouk Portraits



Discover Petra – a city surrounded by towering hills of rust-colored sandstone – renowned for its rock-cut architecture. Savor lunch at a Bedouin camp in the **Wadi Rum desert.** Meet local merchants as you peruse spice markets in Amman. Swim in the healing waters of the **Dead Sea.** From sailing the fabled **Nile River** to cooking Jordanian fare – myriad authentic moments await you in Jordan and Egypt.

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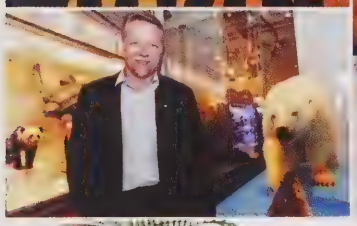
Prices are in CDN dollars, per person, double occupancy. *Door to door transfers within 100km of Toronto, Ottawa, Halifax, Winnipeg, Calgary, Edmonton, Vancouver and Victoria airports. Air rates and availability are valid at time of print and subject to change.

PROMO CODE C529-AX1-918
B.C. registration #23337

Tuesday May 12, 2009

New Gallery Goes Live

EVENTS



The Schad Gallery of Biodiversity

Some 500 guests were wowed by the new Schad Gallery of Biodiversity at a dedication event in honour of Robert and Elizabeth Schad.

This innovative and interactive new gallery on the second level of the ROM's Heritage Building explores the interconnectedness of life with displays of seven ecosystems and some 2,500 specimens, including live fish in a reef-like aquarium. It houses the 59-seat Earth Rangers Studio, which features live animal ambassadors and the latest ROM research.

Dr. Marie Bountrogianni, president and executive director of the ROM Governors, thanked "avid environmentalists and passionate philanthropists" Robert and Elizabeth Schad, the Ivey Foundation, and The Salamander Foundation whose generous support made the gallery possible. The Schads' transformational gift also supports programming and scientific research by ROM curators.

"We believe that life on earth is in crisis," said Mr. Schad, founder and chairman of Earth Rangers, a non-profit organization that empowers kids to help improve the health of the planet. "But there is still hope for change by providing education and inspiring action."

A highlight of the evening was Cosmo the ring-tailed lemur who starred in the Earth Rangers *Power of One* show. These animal ambassadors help to convey the gallery's most important messages: that life on earth is diverse and the ability each of us has to care for the environment.

Clockwise from top left: Jurgen Malinger, Sunny Fong, Kenneth Boon, Andrew Jang; Elizabeth and Robert Schad, Peter Kendall; William Thorsell; Hon. Donna Cansfield, Elizabeth May; Robert Krembil, Mary Hallward; Sal Badali, Vijay J. Kanwar, Deanna Macdougal, Robert Pierce; Dr. Marie Bountrogianni, Elizabeth Schad, Robert Schad, Sonja Bata, Richard M. Ivey; Edward Burtynsky.

SUPPORT

Young Patrons' Circle

MIAMI GLAMOUR AT PROM IV: OCEAN DRIVE

PROM, the annual fundraising event hosted by the ROM's Young Patrons' Circle (YPC), celebrated its fourth successful year on Saturday, March 28, 2009, with PROM IV: Ocean Drive. Thank you to our sponsors, PROM co-chairs, committee, volunteers, and the 200 dinner guests and more than 600 party goers who turned up the heat with a tribute to Miami glamour. Guests got into the theme, hitting the dance floor in their white, aqua, and coral finest.

YPC is Canada's first and largest museum membership group catering to young, urban professionals, a philanthropic group whose members aim to support the goals of the ROM while having fun with their peers. The party was a success on both counts.

For information on how to join the Young Patrons' Circle, call 416.586.8003 or contact us at **ypc@rom.on.ca**. For upcoming YPC programming, go to **rom.on.ca/ypc**.

Royal Patrons' Circle

CELEBRATES ITS SILVER ANNIVERSARY

In the early 1980s, under the leadership of Edwin A. Goodman, then chairman of the Board of Trustees, a capital campaign to support the Terrace Galleries was born. Friends of the Royal Ontario Museum were asked to contribute $5,000 over five years in support of this expansion project. In recognition of their generosity, donors who pledged gifts at this level became part of the Royal Terrace Club. Years later, when these pledged gifts were nearing completion, as were the Terrace Galleries, the group of donors showed their dedication to the ROM by continuing to make an annual gift. In the early 1990s, the name changed to the Royal Patrons' Circle, as the group is known today.

This year RPC celebrates 25 years of annual giving at the ROM. Many donors who made those first gifts of annual support are still RPC donors today, and hundreds of others have joined them in making annual gifts through the Royal Patrons' Circle. Their funds go to support the ROM's most pressing needs—everything from educational programming, to collections care, to international research. Funds raised through the RPC support the very core of the Museum's work.

Even as they continue that ongoing annual support of the ROM, many RPC members have also given a capital gift in support of Renaissance ROM, at $280 million the most successful cultural campaign in Canada.

On June 23, at our annual Chairmen's Reception, we honour our Royal Patrons' Circle founders and donors for their generous ongoing support.

For more information about the Royal Patrons' Circle, call 416.586.5842.

Friends of Ancient Egypt

HELP SOLVE A ROM MYSTERY

A very unusual ancient Egyptian coffin graces the ROM's Discovery Gallery. It was carefully excavated by the Dakhleh Oasis Project in 1983, but there were very few clues as to where the coffin fit in Egypt's long history. The cemetery where the coffin was found had been used and reused for more than 2,000 years. And the oases around Dakhleh were the "Wild West" of Ancient Egypt; styles there did not always follow those in the Nile Valley.

It was the Friends of Ancient Egypt who helped us solve the mystery by providing funds to pay for testing. The results showed that our coffin was made 2,400 years ago. This was a time when Egypt was occupied by the Persian Empire, and Egypt's finest artists had been sent to Iran to decorate the palaces of Persepolis. Those who remained were working on a major temple in the Kharga Oasis. Back in Dakhleh, life (and death) rolled on, but with no trained artists available, even prosperous inhabitants had to make do with odd-looking burial gear.

GAYLE GIBSON is a teacher at the ROM

ANNE TANENBAUM LECTURE SERIES

Dead Sea Scrolls

Price per lecture: $28, online $26; ROM Members and students $25, online $23. Four-lecture packages are available for $84 ($75 Members) and 14-lecture packages for $252 ($225 Members). For details or to register, go to **rom.on.ca/scrolls** or call 416.586.5797.

All lectures will be held in the Signy and Cléophée Eaton Theatre or the Samuel Hall Currelly Gallery twice per night—at 6 pm and 8 pm, unless otherwise noted.

Tuesday, June 23
The Impact of the Dead Sea Scrolls on the Bible
Dr. Eugene Ulrich, John A. O'Brien Professor of Hebrew Scriptures, University of Notre Dame, and chief editor of the Biblical Qumran Scrolls.

Thursday, July 2
The Archaeology of Khirbet Qumran: Recent Excavation Discoveries
Yuval Peleg, Israel Antiquities Authority District Archaeologist for the Jordan Valley.

Thursday, July 16
The Stories of the Toronto Dead Sea Scrolls
Dr. Marty Abegg, Ben Zion Wacholder Professor of Dead Sea Scroll Studies, Religious Studies Department, Trinity Western University, Langley, British Columbia, and co-director of the Dead Sea Scrolls Institute.

Thursday, July 23
Jerusalem in the Dead Sea Scrolls
Dr. Dan Bahat, former district archaeologist for Jerusalem, and currently associate professor, University of St. Michael's College, University of Toronto.

Wednesday, September 16
The Historical Problem of the Essenes
Dr. Steve Mason, professor, Department of History, and Canada Research Chair in Greco-Roman Cultural Interaction, York University, Toronto.

Thursday, September 24
The Archaeology of Qumran and the Dead Sea Scrolls
Dr. Jodi Magness, Kenan Distinguished Professor for Teaching Excellence in Early Judaism, Department of Religious Studies, University of North Carolina, Chapel Hill.

Thursday, October 15
Women in the Dead Sea Scrolls
Dr. Eileen Schuller, professor,

Above: Fragment of the "Book of War" scroll. 20–50 CE.

Department of Religious Studies, McMaster University, Hamilton, Ontario.

Thursday, October 29
Israel at the Time of the Dead Sea Scrolls
Dr. Lawrence Schiffman, Edelman Professor of Hebrew and Judaic Studies, and chair of the Skirball Department of Hebrew and Judaic Studies, New York University.

Thursday, November 5
Rabbis and Romans at Sepphoris: Ornament of All Galilee
Dr. Eric Meyers, Bernice and Morton Lerner Professor of Jewish Studies, and director, Center for Jewish Studies, Duke University, North Carolina. Past president, American Schools of Oriental Research.

Wednesday, November 11
The Conservation and Preservation of the Dead Sea Scrolls
Pnina Shor, head of the Department for the Treatment and Conservation of Artifacts, Israel Antiquities Authority.

Sunday, November 15
The Scribes of Qumran
Dr. Emanuel Tov, J. L. Magnes Professor of Bible, Hebrew University, Jerusalem, and editor-in-chief, Dead Sea Scrolls Publication Project.
Lecture at 5 pm and 6:30 pm

Thursday, December 3
Returning to Sinai: Revelation at Qumran
Dr. Hindy Najman, director, Centre for Jewish Studies, and associate professor, Department and Centre for the Study of Religion, University of Toronto.

Thursday, December 10
The Bible in the Religious Islamic Imagination
Walid Saleh, associate professor of Religion, University of Toronto.

Tuesday, December 15
Jewish and Christian Origins as Revealed by the Dead Sea Scrolls
Risa Levitt Kohn, director, Jewish Studies Program, and professor, Religious Studies Department, San Diego State University.

Photos: Scroll fragment, Courtesy of the Israel Antiquities Authority; ROMtravel (left to right), Wikipedia; Marion Ho; Tour East Holidays (Canada) Inc. Chicago. iStockphoto.com/©Christopher Arndt.

ROMTRAVEL

Intriguing Indochine: Laos, Cambodia & Vietnam

DISCOVER SOUTHEAST ASIA'S EXOTIC PAST IN THIS LAND OF TEMPLES, ANCIENT EMPIRES, AND CULTURAL MÉLANGE

In 1887, by French proclamation, "Indochine" came into being, an amalgamation of Laos, Cambodia, and Vietnam, its name a nod to the intermingling of Indian and Chinese cultures in these lands. Home to six UNESCO World Heritage sites, this region is rich in remnants of ancient kingdoms.

Luang Prabang, until 1975 the royal capital and seat of government of the Kingdom of Laos, retains an air of old Southeast Asia. Known as the "jewel of Indochine," it houses a treasure trove of temples, golden stupas, colonial mansions, and palaces, including the well-known historical sites of the Haw Kham Royal Palace Museum and the Wat Xieng Thong Temple.

In Cambodia, the temples of Angkor dominate the ancient capital of the Great Khmer Empire, a testament to the country's glorious past. The main temple, Angkor Wat, has become a national symbol, appearing on Cambodia's flag, and is certainly the country's prime attraction for visitors. The epitome of the high classical style of Khmer architecture, it was built for King Suryavarman II in the early 12th century as his state temple.

Outside the bustling cities of Ho Chi Minh (Saigon) in the south and Hanoi in the north, Vietnam's quaint port of Hoi An boasts unspoiled ancient Chinese temples as well as stately 17th-century homes built by Asian and European traders. The temple complex at My Son is a fascinating mix of Indian and Javanese cultures. Dating from the 4th to 13th century, it served as the seat of the Champa Kingdom for most of its existence. In the elegant city of Hue, the citadel, royal tombs and mausoleums, pagodas, temples, and the Forbidden Palace of the Nguyen Empire, the last ruling family of Vietnam, line the Perfume River.

If you are interested in immersing yourself in Indochine's rich history and culture, ROMtravel offers a 19-day guided tour of this enchanting trio of countries. In addition to the artistic treasures and must-see architectural sites, you'll enjoy regional culinary delicacies and some unmatched vistas of beauty, including Vietnam's Halong Bay, one of the great natural wonders of the world.

> January 19 to February 6, 2010
$7,420 (international flights not included; regional flights included)
For more information, contact ROMtravel at 416.586.8034, email travel@rom.on.ca or visit the website rom.on.ca/programs/rom_travel.

Upcoming trips

Barcelona: Style Capital:
October 15 to 26, 2009

Sicily: Journey Through the Ages:
April 12 to 23, 2010

A Berlin Kaleidoscope:
May 7 to 17, 2010

Arctic Northwest Passage:
Mid-August or early September 2010

Chicago: October 2010

Churchill, Manitoba:
October 30 to November 3, 2010

Jordan and Israel: November 2010

Brazil: January 2011

Egypt: March 2011

SPONSORSHIP

THANKS TO THE SUPPORT OF CORPORATIONS, INDIVIDUALS, AND FOUNDATIONS, THE ROM IS ABLE TO OFFER MORE DYNAMIC AND INNOVATIVE PROGRAMMING TO ALL VISITORS

Manulife Financial Helps Bring China to Ontario

Seventeen magnificent Chinese paintings from the 15th to 20th centuries were shown for the first time in Ontario in the ROM exhibition *Brilliant Strokes: Chinese Paintings from the Mactaggart Art Collection*. A visual record of life in China, many of these paintings, selected from the University of Alberta's collected works, were not created by professional painters; they were painted by scholars, officials, foreign missionaries, even a 16th-century courtesan. But revealed in each work are the artists' aspirations, emotions, and inner visions, along with their perceptions of life in the bygone days of China.

Manulife Financial, sponsor of the exhibition, has a distinctly modern-day perspective on China, where under the name Manulife-Sinochem, the company has operated financial offices since 1996. A global leader in providing financial protection and wealth-accumulation products, Manulife works with its employees and agents in China to support underprivileged children and the elderly, as well as charitable organizations focused on health, wellness, and education. In Ontario, thanks to its support of *Brilliant Strokes*, Manulife is helping further education about East Asian culture across the sea.

***Brilliant Strokes* is on display in the ROM's Herman Herzog Levy Gallery until September 7, 2009.**

Manulife Financial

Blyth Academy Supports Dead Sea Scrolls—*and Alternative Learning*

Some of history's most influential words are captured in the Dead Sea Scrolls, ancient documents discovered along the shores of the Dead Sea beginning in the 1940s. The texts, which contain some of the oldest known copies of the Hebrew Bible, are considered one of the greatest archaeological finds of all time. They are precious for what they can tell us about the origins of the world's three great monotheistic religions as well as cultural details of life 2,000 years ago.

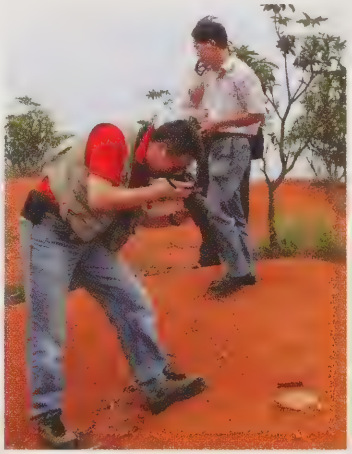
As sponsor of the ROM's exhibition *Dead Sea Scrolls: Words that Changed the World*, Blyth Academy is helping to bring these fascinating documents to Toronto, and thus encouraging discussion among the city's multiple communities. It's a great fit for the private secondary school committed to a student-focused environment and strong results. After all, Blyth encourages learning outside the classroom—through the arts, athletics, and community service—as a way of developing character and a sense of social responsibility. The Academy's commitment to learning, wherever it may happen, is evident in its agreement with the ROM to allow its students to take high-school credit courses at the Museum. Blyth was also a supporter of the ROM's showing of *Darwin*, stepping up to demonstrate that its belief in education can withstand the test of controversy.

Blyth ACADEMY be brilliant!

Cathay Pacific Helps ROM Researchers Examine Our World

More than 30 ROM curators are conducting fieldwork in dozens of countries around the globe—digging for evidence of human origins in China, surveying biodiversity in Guyana, uncovering the history of the Wari culture in Peru. Their work helps to further the goals of conserving the world's habitats and species, and of learning about world cultures.

Sending curators to their distant field locales isn't inexpensive, but Cathay Pacific, as Research Partner of the ROM, is making it easier for these researchers to continue their work—by providing complimentary airline tickets to destinations in the Asia Pacific region.



With numerous awards, including being voted Airline of the Year 2009 by Skytrax and most admired company in Hong Kong by the Asian *Wall Street Journal*, Cathay Pacific shares the ROM's aim of providing outstanding products and services in a socially and environmentally responsible way. And, as sponsor of the ROM's 30th annual research colloquium, a day of curatorial talks hosted each year by the ROM, Cathay is helping get word to the public about the many ways ROM researchers are exploring and explaining our world.

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A.O.U. NO. 356 a
SET NO. 356
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SPECIES F.c.l.c.c. Perisoreus canadensis
LOCALITY Near Beaumaris, Muskoka Lake, Ont.
DATE May 20, 1897
COLLECTOR C. Sattler
NATURE OF SPECIMEN Eggs
INCUBATION
IDENTITY Birds seen on nest by P.A. Taverner
REMARKS Eggs given to P.A.T. May 20, 1897
Cabin on rocky ledge on an Island
Collector J.H. Fleming. April 9, 1930.

Over the years, many gifts of individual natural history collections have greatly enriched the ROM, but James H. Fleming's immense bequest was in a class by itself.

In 1943, his donation was described as "the most representative private collection of birds in the world." With more than 34,000 specimens, even today it makes up almost one third of the ROM's ornithology collection.

In a memorial to James, his friend L. L. Snyder evocatively described a visit to his home: "Whenever I sense that pleasant perfume, for such it is to me, compounded of old books, tobacco smoke, naphtha and seabirds, memories of Fleming and his museum will be recalled."

J. H. Fleming was a dedicated ornithologist who devoted his life and fortune to the scholarship of natural history. His legacy contributes to our understanding of the natural world today.

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ROM Royal Ontario Museum Governors

Ancient Tableware

Wine would never have looked better in this rare piece of Roman glass

BY PAUL DENIS

This Roman flask, dating from about the 2nd to 3rd century CE and now on display in *Dead Sea Scrolls*, was produced in a workshop along the Syro-Palestinian coast, a coastline shared today by Syria, Lebanon, and Israel. Its place of origin isn't surprising since the region produced vast quantities of glassware for the Romans for more than 400 years.

Small vessels in the shape of a human head were sometimes used to hold cosmetics. But the large size of this flask, standing almost 25 cm tall, suggests that it was meant to hold wine or water for the dinner table. Its size and shape make it very rare. Only one similar flask is known—housed in the Yale University Art Gallery.

The ROM's was made by "mould blowing": the glassmaker created the front and back of the head by blowing glass into a two-part terracotta mould. The face, with its large lentoid eyes and straight nose, is simplified because any intricacies in the mould would make it difficult to remove the vessel.

The original pale green of the glass can be seen in the flask's neck. But over the years, the head has acquired a wonderful silvery metallic hue caused by iridescence, or weathering. The colour change has resulted from the interaction of the glass surface with its environment over the last 2,000 years, much as copper would oxidize over time. Iridescence, very thin layers adhering to the surface of the glass, can appear in a rainbow of bright colours. o

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PAUL DENIS is curator of the Greek and Roman section of the ROM's Department of World Cultures.

See more items from this time period in *Dead Sea Scrolls: Words that Changed the World*

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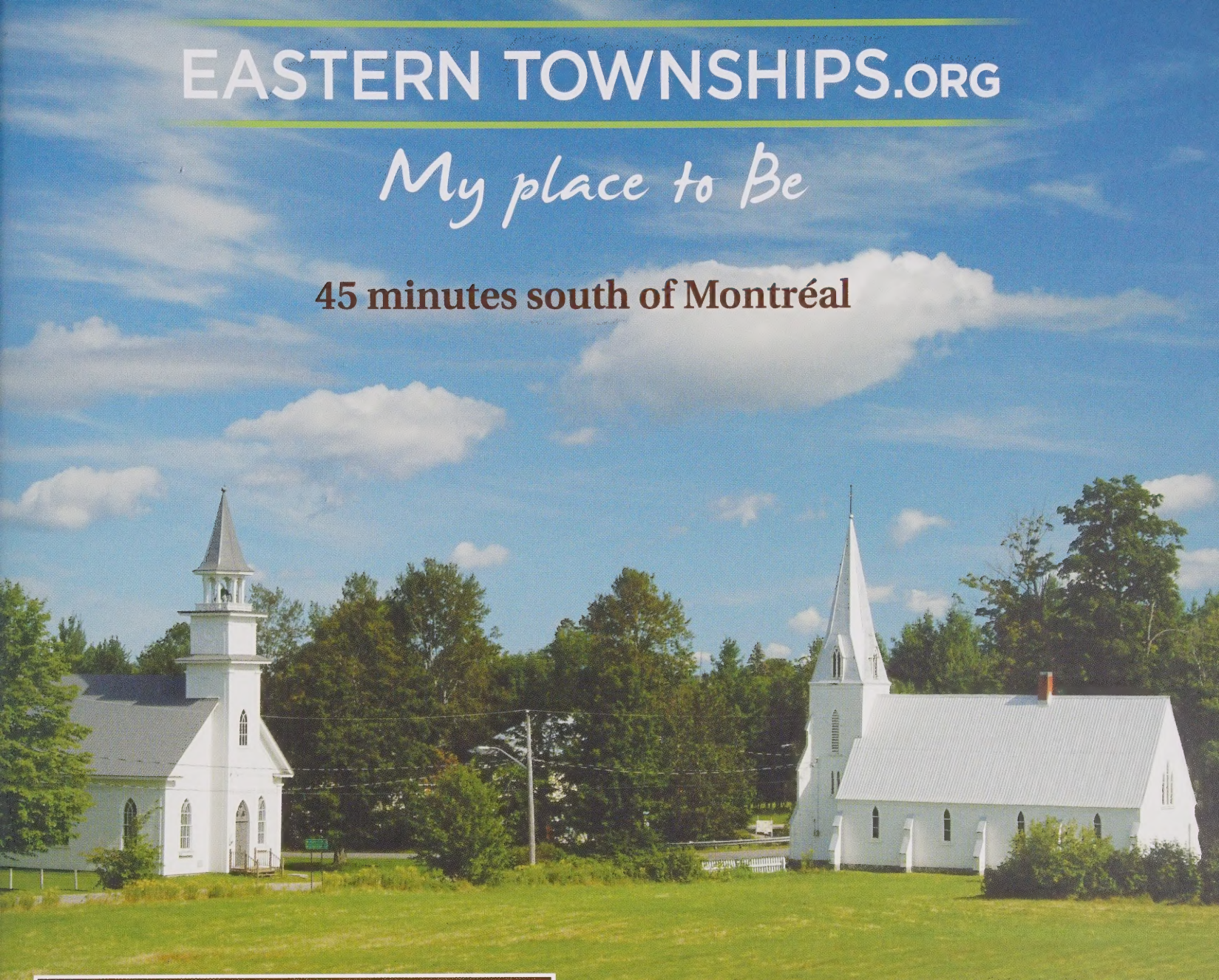

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